# BRAIN AND MIND




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GEORGE COMBE.

# BRAIN AND MIND;

OR,

## MENTAL SCIENCE CONSIDERED IN ACCORDANCE WITH THE PRINCIPLES OF PHRENOLOGY,

AND IN

## RELATION TO MODERN PHYSIOLOGY.

BY

HENRY S. DRAYTON, A.M., AND JAMES MCNEILL.

*ILLUSTRATED.*

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"The greatest friend to Truth is Time, her greatest enemy is Prejudice, and her constant companion is Humility."—COLTON, *Lacon.*

"Phrenology is establishing itself wherever its immense value has been rightly understood."—SIR G. MACKENZIE, F.R.L.S.

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# PREFACE.

THE various systems of Metaphysics, old and new, may serve the learned for discussion, criticism, and speculation; but a system of mental philosophy suited to the masses must be explicit and clear in its definitions and thoroughly practical. The value of a science consists mainly in its subservience to general application in the common affairs of life; and though it is possible for some branch of knowledge to be of eminent importance to the world, yet as long as its principles are so formulated that they can not be understood by the common mind, it must exert little influence in the world's behalf. All the old schemes of mental philosophy labor under the weight of inutility. While dealing with the highest properties of man, his relations as a social, moral, and intellectual being, their methods have been diverse, intricate, and obscure, and, consequently, the man of ordinary intelligence could not grasp their meaning.

Phrenology, however, has the advantage of a physical basis; is simple and natural in its interpretations, and available as a means of usefulness to man in every condition. It has from the first won attention and wide acceptance from the people on account of its clear exposition of facts known to the experience of all, in terms which may be understood and verified by all.

In preparing this volume it has been the aim of the au-

thors to meet an existing want, viz: that of a treatise which not only gives the reader a complete view of the system of mental science known as Phrenology, but also exhibits its relation to anatomy and physiology as those sciences are represented to-day by standard authority. The literature of Phrenology is not by any means lacking in fresh contributions from the pens of competent observers in Europe and this country, but none have given more than a passing glance at the bearing which recent experiment and observation by leading physiologists have upon our subject, notwithstanding the fact that certain of the results which the experimenters have announced are "confirmations strong" of old phrenological principles.

Appreciating the immense importance to society of a correct system of mental philosophy, and being in a thousand ways cognizant of the great value of sound phrenological teaching to each member of society, the authors present this volume to the reader, asking only that it be perused in a spirit of candor, and with due respect for truth.

NEW YORK, *December*, 1879.

# INTRODUCTION.

## A Survey of Ancient and Modern Philosophy

PHRENOLOGY, then, stands exactly like the other sciences of observation upon the basis of phenomena and their observed correspondence with a theory which is deduced from them.—SILLIMAN.

FOR more than two thousand years the study of mind has engaged the attention of the best intellects of every generation. What is the substance or essence of mind? Is it material or immaterial, mortal or immortal? How is it connected with the body? Has it a special seat in any particular organ? If so, in what part of the body does it reside? Or is it equally diffused through every part? Is it an entity which exists separate from the body, and entirely independent of physical organs in its manifestation? or has it a habitation within the body, and particular parts of the body, for particular modes of manifestation? How many, and what are its faculties? Are these innate in the mental constitution? or is the mind a blank at birth? And are its various faculties developed by education and other adventitious circumstances? These

are some of the leading questions which have excited discussion among the learned since the days of the early Greek philosophers; and every distinctive theory comprehended within them has had its earnest advocates.

Pythagoras, five hundred years before Christ, enthroned the thinking principle in the head. Democritus entertained a like opinion. Plato, whose lofty soul furnished the inspiration which illumined the speculations of succeeding philosophers, even until the present century, placed the rational power in the head, while he assigned the passions to the bowels. Aristotle, the first true physiologist of whom history has preserved a record, set the mind in the brain, and was the exponent of a system perhaps invented by him, perhaps recognized by his contemporaries, which is analogous to that of Phrenology. In Aristotle's scheme, the brain is divided into three parts, corresponding with his view of the location of its interior openings or ventricles. Common-sense, a faculty which he supposed had relation to the five senses, he placed in the first ventricle, believing it to be situated in the anterior part of the brain. Imagination, judgment, and reflection he assigned to an opening in the center of the encephalon. In the posterior part he set memory. This conception and distribution of the mental powers were followed closely by the medicists and metaphysicians who lived and flourished from the day of the great Stagyrite almost down to the time of Dr. Gall. Galen, Albert Magnus, Thomas Aquinas Bernard Gordon, Ludovico Dolce, Jean-Baptiste Porta, and Thomas Willis, may be cited as illustrious examples of the mediæval learning which recognized the Aristotelian teaching.

But other views of the seat of life and thought had eminent authority to sanction them. Stahl taught that the

soul occupied the whole body as its habitation. Von Helmont assigned the stomach as the special seat of the mind, and Drélincourt located it in the cerebellum.

Nearly all the learned anatomists of the seventeenth and eighteenth centuries entertained the opinion of the distribution of the brain into parts subserving distinct functions, although Aristotle's scheme seemed, to their advanced enlightenment, little more than shrewd conjecture. Near the time of Gall's publication of his discovery, Charles Bonnet, Herder, Tissot, Haller, Von Swieten, Prochaska, and Cabanis had declared a belief of that nature. Cabanis supported a doctrine concerning the production of thought which had its analogue in antiquity, and is recorded by Galen. This doctrine relegated mental phenomena to the blood, of which they were said to be a vapor or spirit, highly subtilized and refined by the membranes of the brain. Cabanis' attitude among metaphysicians is that of a materialist. In his writings he avows principles with regard to the nature of thought similar to those entertained by conspicuous authors of the present day. For instance, he says in one place: "The active principle of life and movement in animated bodies, which Stahl calls the soul, is one, but it acts diversely in the organs according to differences of structure and function. It digests in the stomach, secretes bile in the liver, and thinks in the brain." Professor Flint, in his late treatise on "The Physiology of Man," says: "The brain is not, strictly speaking, the organ of the mind; for this statement would imply that the mind exists as a force independently of the brain; but the mind is produced by the brain substance; and intellectual force, if we may term the intellect a force, can be produced only by the transmutation of a certain amount of matter."

It would be impossible to present within the space of a

single volume, to say nothing of a single chapter, a complete analysis of the theories of the many metaphysical systems which have been propounded; and indeed this is not our province. We will, however, glance at some of the more prominent authors before proceeding to the exposition of our proper subject.

Whoever has scanned the field of ancient and modern philosophy knows that it is characterized by disagreement, contradiction, and inconsistency with respect to the faculties and powers of the mind, and he has, doubtless, found himself "in wandering mazes lost," ready to exclaim with the great poet:

"Vain wisdom all and false philosophy."

Before the days of anatomy and physiology, man seems to have regarded his moral faculties as owing their peculiar qualities or phases to external impressions, or according to his will and inclinations. He divided, therefore, his intelligence into two parts—the understanding and the will. The first comprised the power of perceiving ideas, associating them, and judging and reasoning, etc.; the second was understood to be a faculty by or through which man was affected in an agreeable or disagreeable manner, and so prompted to like or dislike, and to act in accordance with such feeling. In process of time further distinctions were made. Differences of impressions made by the same thing upon the minds of different men were recognized, and faculties were designated, one after another, in accordance with the differences existing between intellectual ideas. With Plato we have the appearance of systematic doctrine. "Ideas," said he, "are everything. They form the universe, are derived from the Supreme Being, or constituted by Him, and form the aggregate of creation." Thus arose

the doctrine of innate ideas. Aristotle, though a disciple of Plato, differed from him with regard to the nature of ideas. A careful anatomist, and regarding mainly the material aspect of things, he denied that ideas are innate. In accordance with his distribution of the brain into parts, he claimed that ideas are impressions received through the senses, the understanding being likened to a smooth, waxen tablet, or a sheet of blank paper. For many hundreds of years a conflict was waged between the followers of these two great champions; and their doctrines have found earnest friends even in the schools of our own century.

Helvetius, in the early part of the eighteenth century, taught that the mind, in both man and animals, is a blank at birth, and that all its powers are acquired by instruction. Ignoring the fact of "instinct," he said that the beaver, for instance, has no innate mental power which prompts it to build its dam; but its wonderful constructive ability is acquired by instruction from its parents. The bee is not instinctively impelled to build or to gather honey, but learns by instruction how to build its cells with the greatest economy of space and material, and how to select its flowers and gather its honey. The fox hunts because it has learned hunting from its parents. The bird sings and builds its nest in consequence of instruction; and man becomes man by education.

The Scotch writers, whose vigor and brilliancy contributed to make the last century an era which will be ever memorable in the history of intellectual philosophy, endeavored to found their systems upon common-sense, and so pass in review the qualities and suggestions natural to man—as love, hatred, the sentiments of justice, veneration, admiration, the feelings of fear, courage, etc., and admit them to be primitive faculties or impulses of the mind. The

Edinburgh school comprised such men as John Hutchinson, Thomas Reid, Dugald Stewart, Lord Kames, and Thomas Brown, who contended against the skeptical views of the German writers of the period. Kant, deemed by many the most notable of these, in his "Critique of Pure Reason," says: "All our knowledge begins with sense, proceeds thence to understanding, and ends with reason, beyond which nothing higher can be discovered in the human mind for elaborating the matter of intuition and subjecting it to the highest unity of thought." The Hegelian philosophy is a jumble of speculation, in which belief in intellectual intuition is rejected. What is regarded as the German school of metaphysics owed its origin mainly to the teachings of the famous Descartes, whose inquiries into the nature of self-consciousness produced a revolution in scholastic philosophy, and yet merely changed the current of speculation.

"From the days of Aristotle to the present time," says Mr. George Combe, "the most powerful intellects have been directed with the most persevering industry to this department of science; and system after system has flourished, fallen, and been forgotten in rapid and melancholy succession. To confine ourselves to modern times, Dr. Reid overturned the philosophy of Locke and Hume. Mr. Stewart, while he illustrated Reid, yet differed from him in many important particulars; and recently Dr. Thomas Brown has attacked, with powerful eloquence and philosophical profundity, the fabric of Stewart, which already totters to its fall. The very existence of the most common and familiar faculties of the mind is debated among these philosophers. Mr. Stewart maintains Attention to be a faculty; but this is denied by Dr. Brown. Others, again, state Imagination to be a primitive power of mind; while

Mr. Stewart informs us that 'what we call the power of Imagination, is not the gift of nature, but the result of acquired habits aided by favorable circumstances.' Common observation informs us that a taste for music, and a genius for poetry and painting, are gifts of nature bestowed only on a few; but Mr. Stewart, by dint of his philosophy, has discovered that these powers, and also a genius for mathematics, 'are gradually formed by particular habits of study or business.' On the other hand, he treats of Perception, Conception, and Memory as original powers; while Dr. Thomas Brown denies their title to that appellation. Reid, Stewart, and Brown admit the existence of moral emotions; but Hobbes, Mandeville, Paley, and many others resolve the sentiment of right and wrong into a regard to our own good, perception of utility, and obedience to the Divine command."

Thus, after the lapse and labor of more than two thousand years, philosophers are not yet agreed concerning the existence of many of the most important principles affecting the intellectual powers of man.

If we inquire into the causes of these conflicting theories, and the barren results which have attended the study of mind in the past, we shall find its explanation in the methods of investigation which have hitherto been employed. Anatomists and physiologists have dissected the human body, analyzed its various systems, and discovered the functions of nearly all its parts. The knowledge which they have obtained of the physical system by material appliances is precise and definite; so that there is now a general agreement in regard to the fundamental principles of physiology. But the mind is not subject to such methods of investigation. They who taught that the brain is the seat of three general faculties of the internal sense, were

never able to discover by dissection either common-sense, or phantasy, or memory slumbering within its ventricles. Nor were those who taught that the passions had their seat in the thoracic and abdominal viscera ever able by dissection to find any traces of courage in the heart or anger in the liver. No anatomist, by the most skillful use of the scalpel and the microscope, has been able to discover the function of an organ from an examination of its substance. Lay before an anatomist the nerves of the five senses, and by nothing in their structure or substance would he be able to determine which was the nerve of taste, which of hearing, which of smelling, which of sight, or which of feeling. He might, indeed, after having learned the purposes which the eye, the ear, the heart, or the stomach subserved in the animal economy, be able to trace out in its form and structure its complete adaptation for its purpose, but never would he be able to discover its function from a mere examination of its material parts. How utterly impossible, then, must it appear to discover the nature and powers of a subtile, intangible principle, a thought, an emotion, from an examination of the cerebral tissue!

Philosophers have pursued the study of mind by different methods, but generally have endeavored to shut out the material world, and to shut the mind in upon itself, and thus make its personal phenomena a study. By reflection on consciousness, they have attempted to analyze the mind and resolve it into its elements. But reflection on consciousness can not reveal the function of an organ, the processes by which thought and feeling are elaborated, or the means by which the internal operations of the body are performed. Consciousness does, indeed, localize the mind in the brain, but it gives us no idea of the functions of its different parts. We will to move an arm, but we are not

conscious of the nervous influence being transmitted to and from the brain along the nerves of feeling and motion. We see, we taste, we smell, we hear, but consciousness gives us no knowledge of the location or the condition of the nerves of the senses, nor does it reveal the changes which they undergo in the performance of their functions. If we ignore the influence of organization in the mental manifestations altogether, and undertake to resolve the mind into its elements by reflection on consciousness, the imperfections of the individual mind of each philosopher would naturally appear in his system.

This is actually the case; most of the writers on mental philosophy have given to the world systems or doctrines which are little more than reflections of their individual modes of thought and feeling; hence the great diversity of opinions which characterize their works.

Whatever may be the original powers of mind, or their means or mode of manifestation, it is evident that men differ widely in disposition and capability. Some are selfish, others are generous; some are penurious, others are liberal; some are passionate, others are mild and pacific; some are ambitious, others are deficient in aspiration; some have a delicate sense of truth and justice, and others are influenced by these sentiments in only a feeble degree.

We observe also that one individual has a peculiar talent for mathematics, another for music, and another for drawing and penmanship. One is able to express his ideas with great fluency, and another passes for a dullard in society because of his inability to give his thoughts expression. The style of one is concise, harmonious, and abounding in well-chosen illustrations; that of another is dry, diffuse, obscure, and lacking in grace and beauty. One loves to reflect upon the deep and hidden things of nature, and to

trace phenomena back to the causes in which they originate; another readily discerns the mechanical adaptation of things, and shows peculiar skill in the employment of tools and machinery. It would be natural that those characteristics which are strongly manifested in the mind of any individual would appear to him to be the direct result of innate and original powers, while those sentiments which he experienced in a feeble degree would appear to him unimportant or scarcely existing in the mind at all. This is another explanation of the diversity of opinion among philosophers in regard to the original powers and faculties of the mind.

If it is said that the common consciousness of mankind must be the criterion in all disputed points, the question occurs, What is the common consciousness of mankind? If, after the lapse and labor of more than two thousand years, there is yet no unanimity among philosophers concerning the most important principles affecting human action, how futile must be the attempt to reconcile conflicting opinions in regard to the principles of mind by an appeal to universal consciousness. So long as men differ in mental constitution, there can be no universal criterion in regard to the primitive faculties of the mind derived from reflection on consciousness; and hence the impossibility of building up a science of mind which shall be universally accepted by such a method of investigation.

In the construction of the system commonly termed Phrenology, the study of mind has been pursued in a manner very different from any which had been hitherto employed. Its deductions rest on a foundation similar to those of the purely physical sciences. No one previously to experience would be able to predicate the qualities which the oak or the pine possessed. But after many ob-

servations, the conviction would be irresistibly forced upon him that there is a law inherent in the constitution of each which determined its peculiar qualities, and ever afterward he would be able to predicate those qualities of the pine and oak with confidence. By this method of observation and induction, the sciences of botany, chemistry, geology, astronomy, etc., have been evolved; and we claim that this method of studying mind is the only one which can give a proper basis for a system of mental philosophy.

In regard to the questions which have been raised concerning the substance or essence of mind—whether it is material or immaterial, or how the spirit and the body are united—our philosophy is silent. We study mind only as it makes itself manifest through the physical organization. Observation shows that there is a concomitance between the vigorous manifestation of certain traits of character and a large development of certain parts of the brain. And wherever we find a large development of a cerebral part, we infer that there must be a correspondingly vigorous manifestation of the mental characteristic peculiar to it; and wherever we find the trait of character strongly manifested, we infer that there is a large development of the cerebral part. But back of this reciprocal relationship between the mind, the vital entity or influence, and its material organ, we do not, can not go. We have perceptive faculties which enable us to observe facts, and reasoning faculties which enable us to trace out their relations; but we have no powers, thus far discovered, by which we may study mind as a spiritual existence; and should we attempt to answer the questions concerning the essence of mind and the nature of its connection with the body, we would be likely to contribute only to the great mass of indefinite and unsatisfactory speculation already existing.

# CHAPTER I.

## GENERAL PRINCIPLES.

PHRENOLOGY—composed of two Greek words, *φρην*, signifying mind, or the reasoning faculty, and *λογος*, discourse—is a system of mental philosophy founded upon the physiology of the brain. It assumes as its fundamental principle that the brain is the organ of mind just as the eye is the organ of vision, the stomach of digestion, or the heart of circulation.

It was long a disputed point among physiologists what function the brain performed in the animal economy. Hippocrates and Astruc thought the brain was a sponge; Aristotle considered it a bloodless mass which tempered the heat of the heart; Praxagoras, Plistonicus, Philotinus, and others regarded it as a mere excrescence of the spinal marrow; Misticelli called it an inorganic mass; Malpighi thought it was a collection of confused intestines; Sabatier and Boyer considered it a secretory organ; Galen and many others imagined that it secreted vital spirits, and distributed them through the arteries of the body; and Bichat thought it an envelope to protect the parts beneath. It is now generally conceded by the leading physiologists that the brain is the organ of mind. As, however, there are those who are disposed to dispute the correctness of this opinion, it may be well for us to bring forward some of the proofs by which the truth of this proposition is established.

1. ***Size and Intelligence.***—A low degree of mental power invariably accompanies a marked deficiency of brain. In the lowest class of idiots the horizontal circumference of the head, above the ears, measures from 12 to 13 inches; in a full-sized head the circumference is 22 inches. In such idiots the distance from the root of the nose, measured over the top of the head to the occipital spine, is but 8 or 9 inches; in a full-sized head it is 14. The heads of barbarous or savage races are smaller than those of the civilized; the negro skull has a brain capacity averaging 82




Fig. 1.—Low Type, Idiot Skull.



Fig. 2.—Well Developed Skull.

cubic inches; the higher tribes of American Indians, according to Prof. S. G. Morton, like the Seminoles and Oneidans, have a brain-measurement of about 90 inches; while the measurement of the English and German encephalon internally is placed by the best authorities at over 100 cubic inches. In a table derived from 405 autopsies of white and negro brains, recorded by Prof. Austin Flint, of New York, the average weight of the white brain is given at 52 ounces, and that of the negro at 46.9; these negro specimens, however, were of men who had been associated

with whites almost from birth. Whenever the head does not exceed 13 or 14 inches in horizontal circumference, idiocy is the invariable consequence.

2. ***Brain Development and Mentality.***—Throughout the whole animal kingdom the brain is found to be larger and more complicated in proportion to the strength and number of the mental faculties manifested. "We find," says Prof. Graves, of Dublin, "that exactly in proportion as the encephalic portion of the nervous system is developed in the vertebrated animals, we can trace the appearance of new faculties, which, few and obscure in the lower species, become, as we ascend, more numerous and more distinct until we arrive at man, in whom the brain attains a degree of preëminence sufficient to place him far above all other species of mammalia . . . . But man does not only differ from other animals in the configuration of his brain and the capacity of his mind, but also exhibits the singular fact of a great difference in these respects between individuals of the same species: it being an obvious fact that different men exhibit as much disparity in their intellectual powers as if they were animals of a different genus. In all such cases, where the difference between the intellectual powers is extreme, there also we invariably find a striking difference between the form and size of their skulls, the most highly-gifted always presenting a greater relative proportion of brain." On this point modern physiologists are generally agreed. Prof. Flint, in his late work on Physiology, cautiously writes: "It may be stated as a general proposition that, in the different races of men, the cerebrum is developed in proportion to their intellectual power; and in different individuals of the same race, the same general rule obtains." Cromwell, Cuvier, Abercrombie, Dupuytren, Chalmers, Napoleon Bonaparte, Daniel Webster, Spurzheim,

and other men of conspicuous eminence possessed heads much larger than the average.

3. ***Effect of Morbid Conditions.***—In disease of or injury to the brain the mind is always affected. Dr. Stokes, in his lectures on the practice of medicine, relates a case in which a tumor was removed from the interior surface of a man's skull; whereupon the patient was immediately, and for the first time, attacked with loss of consciousness, and convulsions of the trunk and extremities. The surgeon, thinking that the removal of the pressure from the brain, to which it had gradually accommodated itself during the growth of the tumor, was the cause of these symptoms, made a gentle pressure on the exposed surface, and the convulsions immediately ceased and consciousness returned.

Another authority, Prof. Chapman, relates a case in which the brain was exposed by the loss of a portion of the skull. In this instance consciousness could be suspended at pleasure by merely pressing on the exposed surface with the finger, and restored by removing the pressure. Sir William C. Ellis reports, in his "Treatise on Insanity," that out of 221 cases of dissection, he found that 207 showed decided marks of brain disease; four of the remainder being congenital idiots must be excluded from the list, thus leaving only ten cases in which he could not detect organic disease of the brain; and of these ten, seven were recent cases, being only about a month ill.

4. ***In Swooning,*** the blood being rapidly withdrawn from the brain, consciousness is suspended.

5. ***Movement.***—Where the brain has been exposed by the removal of a portion of the skull, it has been observed that it is agitated in proportion to the degree of mental excitement. A young man was brought to Sir Astley Cooper

who had lost a portion of his skull just above the eyebrow. "On examining the head," Sir Astley says, "I distinctly saw the pulsation of the brain. It was regular and slow; but at this time he was agitated by some opposition to his wishes, and directly the blood was sent with increased force to the brain, and the pulsations became frequent and violent. If, therefore," he continues, "you omit to keep the mind free from agitation, your other means (in the treatment of injuries of the brain) will be unavailing."

Dr. Pierquin reports the case of a woman who had lost a large portion of her scalp, skull, and dura-mater. When in a dreamless sleep, her brain was motionless, and lay within the cranium. When agitated by dreams, her brain moved, and protruded outside the cranium. In vivid dreams the protrusion was considerable; and when she was perfectly awake, especially if engaged in active thought or sprightly conversation, it was still greater.

These are but a few in the vast multitude of cases which might be brought forward in support of the principle that the brain is the organ of mind.

### THE BRAIN A CONGERIES OF ORGANS.

A second principle of Phrenology is, the brain is made up of as many individual organs as there are distinct mental faculties. This is a proposition which is not admitted by all of those who readily concede that the brain is the organ of mind, yet it is supported by an array of proof fully as convincing as that. It is in point to remark here that the necessity of considering the brain a compound organ had presented itself to the minds of many earnest inquirers of ancient and mediæval times, from Aristotle down, in order to account for the great diversity of mental characteristics which they observed among men.

Aristotle, as has been stated in the Introduction, divided the brain into parts, and designated them as the seats respectively of common sense, imagination, judgment, reflection, and memory. This distribution was accepted or followed in the main by leading philosophers from Aristotle to the time of Dr. Gall's discoveries. Such authorities as Galen, Albert Magnus, Bernard Gordan, Huarte the Spaniard, Porta of Naples, Ludovico Dolce, Thomas Willis, a professor in Oxford University, are noteworthy. Of Prof. Willis a recent author, Dr. B. W. Richardson, says that it was "he who gave the world of science the first true light on the function of the different parts of the brain." A work on the "Anatomy of the Brain" was published by Willis in 1644, in which he sets forth his doctrine that the brain is a congeries of organs, and the seat of moral and intellectual action.

Fœderé, a zealous opponent of Phrenology, is compelled to admit, when speaking of a plurality of organs in the brain, that "this kind of reasoning has been employed by the greater number of anatomists, from the time of Galen down to our own day, and even by the great Haller, who experienced a necessity for assigning a function to each department of the brain."

Cuvier says, in his "Anatomie Comparée," vol. ii., that "certain parts of the brain in all classes of animals are large or small, according to certain qualities of the animal." Bonnetus asserts that "the brain is a very complicated organ, or, rather, an assemblage of different organs." Tissot also asserts that every perception has different fibers; while Van Swieten and Prochaska entertained the opinion that the internal senses occupy in the brain organs as distinct as the nerves of the external senses. But it was reserved for Dr. Gall to give a substantial basis to the theory that

the brain is a compound organ, by discovering the respective places in it of different mental faculties. The weight of authority supplied by the authors we have named is great, but aside from them we think that the brain is demonstrated to be a compound organ by the following arguments :

1. ***Organ and Function Special.*** — Every distinct physical function has a special organ. Sight, hearing, taste, digestion, circulation, etc., has each its appropriate organ, which is capable of performing only its peculiar function. And whenever any organ has a compound function, it is found to be possessed of a complex nervous apparatus. The tongue, for instance, which exercises the function of taste, possesses also those of feeling and motion, and accordingly it has three sets of nerves corresponding with its triple function. From analogy, therefore, it is reasonable to suppose that such different mental operations as loving, hating, fearing, hoping, etc., should have different cerebral organs.

2. ***Mental Faculties Successively Indicated.***—The different mental faculties do not all appear at the earliest period of the individual's existence. Almost the only faculty manifested by the new-born babe is the desire for food, but soon it comes to observe things which exist around it, and to love, dislike, and manifest anger and stubbornness; while its capacity to reason, and its sense of duty and responsibility, do not appear until a much later period. Were the brain a single organ it would manifest at any time one faculty as readily as another.

3. ***Genius or Talent Partial.***—The fact that genius is almost always partial is plainly contradictory to the organic unity of the brain. For, if a mental faculty be only a particular mode of mental manifestation, and if the whole

brain be concerned in every operation of the mind, there is no reason why an individual who possesses a remarkable talent for mathematics should not be equally gifted in music, painting, poetry, or in any other special talent. It is to be observed that remarkable talents often appear at such an early age that the old metaphysical theory that they are "the result of acquired habits, aided by favorable circumstances" is entirely precluded. Allan Cunningham, in his "British Painters," says of Richard Wilson: "His love of art appeared early. How this came upon him in a place where there were no paintings to awaken his emotions we are not informed, but a slight cause will arouse a strong natural spirit." Of Benjamin West he says that at the age of seven he drew an accurate likeness of his little sister with red and black ink, and this is the more remarkable as "there were neither professors, paintings, nor prints among the primitives of Pennsylvania." Pope says of himself that he "lisped in numbers, for the numbers came." And George Bidder astonished the world with his mathematical calculations at the age of twelve. Within a year past Mr. Smiles' interesting biography of Thos. Edwards, the Scottish naturalist, has been published, which furnishes additional testimony, if any be needed, to the variations of mental organization and partial genius. Mr. Smiles, in striking terms, shows how the innate qualities of this eminent subject displayed themselves in childhood: "When only four months old he leaped from his mother's arms to catch some flies buzzing in the window;" and when a boy he persisted in collecting and studying the habits of beetles, frogs, crabs, lizards, rats, mice, etc., in spite of threats and whippings.

4. ***Idiocy and Insanity Special.***—Partial idiocy and partial insanity are explicable only on the supposition that the mind operates through a plurality of organs.

There are individuals who possess a remarkable talent for music, drawing, rhyming, calculation, or mechanics, but who in all other respects are practically idiotic.

Fœderé, in speaking of the Alpine Cretins, says: "It is remarkable that, by an *inexplicable singularity*, some of these individuals, endowed with so weak minds, are born with a particular talent for copying paintings, for rhyming, or for music. I have known several who have taught themselves to play tolerably on the organ and harpsichord: others who understood, without ever having had a master, the repairing of watches and the construction of some pieces of mechanism." These powers, he says, could not be attributed to intellect, "for these individuals not only could not read the books which treated of the principles of mechanics, but were confounded if spoken to on the subject, and never improved themselves."

The reader is probably familiar with that remarkable American musical prodigy, "Blind Tom," who has been so extensively exhibited. This negro youth, although a wonder to all who hear his musical performances, is an imbecile in most other respects.

Were the brain a single organ, these phenomena could not occur; for whatever power it possessed it would be equally capable of manifesting that on every subject, and it would be just as unreasonable to suppose that such power could be exercised on music, drawing, mechanics, or mathematics, and be utterly deficient in every other respect, as to suppose that the eye which is capable of seeing a horse, a cow, a tree, or a house might be blind to every other object in nature.

In *monomania* and partial insanity, again, the phenomena of the mind indicate derangement in one or several faculties, while all the rest appear perfectly sound.

"Hospitals for the insane," says Pinel, "are never without some examples of mania marked by acts of extravagance, or even of fury, with a kind of judgment preserved in all its integrity, if we judge of it by the conversation; the lunatic gives the most just and precise answers to the questions of the curious; no incoherence of ideas is discernible; he reads and writes letters as if his understanding were perfectly sound; and yet, by a singular contrast, he tears in pieces his clothes and bed-covers, and always finds some plausible reason to justify his wandering and his fury. This sort of mania is so far from rare that the vulgar name of *folie raisonnante* has been given to it."

Sir George Mackenzie mentions the case of a man who was able to converse rationally on every subject but the moon. On hearing the moon mentioned he became greatly excited, as he believed himself secretary to the moon. Dr. Gall speaks of a lunatic who was confined in the hospital at Bicetre, who succeeded so well in persuading a magistrate who visited the asylum that he was the victim of the cupidity and cruelty of his relatives, that the magistrate thought seriously of examining into his case with a view to setting him at liberty. But as he was about taking his departure, promising to return shortly with good tidings, the madman remarked: "Your excellency will always be welcome except on Saturday; for on that day the Holy Virgin makes me a visit."

These cases of partial insanity, like those of partial idiocy, are utterly incompatible with the idea that the mind has but a single organic apparatus; but they are clearly and rationally explained on the supposition that the brain is composed of a number of organs. For then, in cases of partial idiocy, it is perfectly rational to suppose that the organs of those faculties which are strongly manifested are

well-developed, while the other mental organs are in such a rudimentary condition as to be incapable of the proper manifestation of mind; and all cases of partial insanity are rationally explained by the theory that one or more mental organs are diseased, and thus give forth a perverted manifestation, while all the others are sound, and capable of performing their normal function. This, indeed, has been proved in a vast number of instances by actual demonstration.

5. ***Injuries*** to parts of the brain tend, in like manner, to confirm the notion of its compound character, as well as the correctness of the location of its organs. A boy in Washington was once struck on the head at the place where the organ of Tune is situated, and a sliver of the inner plate of the skull was driven into the brain at that part. He immediately began to manifest a powerful disposition to whistle; he whistled constantly; would even whistle between his mouthfuls of food, but when the portion of bone which had been driven into his brain was withdrawn by a surgeon, he whistled less and less, until the wound had healed, when his impulse to whistle was entirely removed.

A man received a blow upon the organ of Mirthfulness, and soon after exhibited such a disposition to make fun of everything he saw, that his friends had him confined as a lunatic. But on the application of treatment to reduce the inflammation of the injured part of the brain, he was entirely cured in a few hours of his disposition to laugh. A farmer in Massachusetts, while yoking oxen, received a blow from the horn of one of them on the back part of his head. Though formerly an affectionate husband and a kind neighbor, he soon came to treat his wife very harshly, and would order his former friends and neighbors out of the

house when they came to visit him, while with strangers he was courteous and sociable. A *post-mortem* examination revealed the fact that the organ of Friendship was the portion of brain which had received the blow from the ox, and it and adjoining organs were extensively diseased.

A very recent case, appropriately mentioned in this connection, is that of Byron Wright, who died at Waterloo, Iowa, in July, 1875, from the effects of a pistol shot received over two years previously. The ball entered the back of his head in the upper part of the region allotted to Philoprogenitiveness, in the left hemisphere, and near the falciform process, taking a course slightly inclined to the left and upward and penetrating to an extent of $3\frac{3}{4}$ inches. Contrary to all expectation, Wright rallied under careful treatment, and so far recovered as to be able to go about; but his disposition assumed phases unknown in him before. He was a teacher by profession, but now he lost all his love of children and home, and became extravagantly conceited, aiming at notoriety, and showing an unscrupulous regard to the moral nature of the means for obtaining it. He became a wanderer, took one school after another, and treated his pupils with great cruelty, whereas before the injury he had been a kind and considerate instructor. As the inflammation or disintegration of the brain proceeded, Wright's social nature became more and more disordered and his moral eccentricities more pronounced, until he was declared insane by the Commissioner of Insanity. Nevertheless his intellectual powers were but slightly impaired. His brain after his death was examined by several physicians, in pursuance to his own request, and it was found that the posterior lobe, a considerable part of the middle lobe, and a small part of the anterior lobe

of the left cerebral hemisphere had become diseased. The indications were that the inflammation had spread gradually from the region of the wound, the portions in its neighborhood being, of course, most affected, and these were such as are allotted in the phrenological order to Inhabitiveness, Philoprogenitiveness, Self-esteem, Firmness, Approbativeness, Adhesiveness, Conjugal Love, Combativeness, and Destructiveness; and Wright's derangement of mind involved, according to the testimony of Dr. D. W. Crouse, of Waterloo, and others who knew him intimately, phenomena indicating special disorder of the defined functions of these organs.

6. ***Dreaming.***—The phenomena of dreaming are explicable only on the supposition that the mind is manifested through a plurality of organs. It is presumable that it is the repose of the material instrument of the mind which is the cause of sleep, and if that instrument were a single organ, it would be difficult to conceive how it could be partially awake and partially asleep at the same time. But if we consider the brain as made up of a plurality of organs, the phenomena of dreaming are capable of rational explanation; for then it will be seen that some of the mental organs may be completely under the influence of sleep, while others are in a state of wakefulness, and thus able to form pictures either coherent or absurd which may be recalled as dreams when we awake.

7. ***Faculties at rest and in exercise.***— The fact that when wearied by the exercise of one class of faculties we may turn to a subject which will call other faculties into play, and experience a feeling of restfulness, is explicable only on the theory that the mind has many instruments, each of which may in turn be called into activity, and in turn allowed repose. Related to this is—

8. ***Variety of occupation.***—Referring to our daily experience we may satisfy ourselves that the mind operates through a plurality of organs, since we often manifest several different faculties at the same instant. We may feel angry because of an outrage committed on some innocent subject, while we have pity for the suffering of the victim. We may experience the sentiments of love, hope, and fear all at the same instant. We may smile, yet "murder while we smile." If the mind had but a single organ, this could not be, for then every feeling or emotion which we experienced must necessarily follow one another in succession.

SIZE AND MENTAL POWER.

One of the arguments which we have brought forward in proof that the brain is the organ of mind is that a deficiency of brain is always attended by a low degree of mental power, and that men of commanding mental capacity have invariably had heads of unusual size. Now, what is true of the brain as a whole, is true also of its individual organs. The greater the size of an organ, the greater will be its power of manifesting its faculty; and, on the other hand, the smaller an organ, the weaker will be the manifestation of its faculty. In other words, the size of an organ is the measure of its power. The principle that size is the measure of power holds true universally wherever objects are compared which possess the same qualities. A large bone or muscle possesses greater strength than a small one; and the function of respiration will be vigorous or feeble in proportion to the size of its organ, the lungs. Some, indeed, have asserted that this law does not hold true of the brain, but only of those organs whose exercise is connected with mechanical force, as in muscular contraction. The perfection of vision, it is said, does not bear the least

proportion to the size of the eye, either when considered with respect to different species of animals, or with respect to different animals of the same species. But though the power of vision is not measured by the size of the eye, it is incontrovertible that it is measured by the size of the optic nerve, which is in reality the medium of vision. According to Desmoulins, in the screech-owl, the sight of which is defective, the parts from which the optic nerves arise are not more than one-twentieth part of the brain; while in the eagle, which is proverbial for keenness of vision, the same parts are about one-third of the brain. The optic nerves in these two classes of animals are in the same proportion. This same author says that in order to increase the surface of the retina, which is the expansion of the optic nerve, it is thrown into folds in eagles, vultures, and falcons, so that the folds hang loose in the eye; but in animals of ordinary sight these folds do not occur. The compound eye of insects like the fly and bee is associated with an optic brain-center of conspicuous dimension. The Schneiderian membrane in the nose of man is spread over a surface of only twenty square inches, while in the seal it covers one hundred and twenty square inches; and so great is the power of smelling in the seal that hunters are obliged to approach him directly against the wind, else he would recognize them by their smell.

These cases tend to prove that in nervous matter, as well as in those cases where the exercise of an organ is connected with mechanical force, size *is* the measure of power. In laying down this principle with reference to the mental organs, however, we are always careful to put in the qualifying clause, *other things being equal.* If we were to compare a pine stick with an oak stick, or an oak stick with an iron bar, it is obvious that the law of size being the measure

of power would not hold good, because of the different properties of these different materials. In estimating the power of a mental organ from its size, in like manner, there are influences which enter in as modifying conditions, and which it is of the highest importance to take into account.

# CHAPTER II.

## OF THE TEMPERAMENTS.

THERE are great differences among men in the substance and quality of their organizations. Some, like the wood of the palmetto tree, are porous, spongy, and weak; while others, like the oak, are dense, firm, and strong. There are small horses which will outwork large ones; and a small man very frequently displays greater physical strength and endurance than one of a much larger size. These differences are referable to what is termed the *quality* of the organization. It pervades the whole body, imparting its influence to the brain and nerves, as well as to the muscles; and thus, through the material instrument of the mind, affecting mental manifestation. This quality is so intimately related to the physical organism that a knowledge of the temperaments which enter into its constitution is most important in the study of mind.

***Temperament*** may be described as a certain state or condition of the body depending upon the relative energy of its different functions. According to the ancient doctrine as promulgated by Hippocrates, the "father of medicine," there are four temperaments depending upon what he considered the four primary components of the body: the blood, the phlegm, the yellow bile, and the black bile. According to the preponderance of any one of these, the individual was known as, respectively, of the sanguine, the phlegmatic, the choleric, or the melancholic temperament.

In this classification, the brain is not considered as exerting any special influence, although its function is now conceded to be the most important in the animal economy. The attention of Drs. Gall and Spurzheim was directed to this fact, and they perceived the necessity of considering the brain as the basis of a special temperamental condition.

***Spurzheim's Classification.***—According to the classification adopted by the first teachers of phrenology, there are four temperaments, the Lymphatic, the Sanguine, the Bilious, and the Nervous, each depending upon the predominating influence of the stomach, the lungs, the liver, and the brain respectively. These different temperaments are indicated by external signs which are open to observation.

***The Lymphatic Temperament,*** depending upon the predominance of the stomach, is characterized by a pale skin, fair hair, roundness of form, and repletion of cellular tissue. The vital action is languid, the flesh is soft or plastic, and the circulation feeble and slow. The brain, partaking of the general systemic condition, is slow and feeble in its action, and the mental manifestations are proportionately weak.

***The Sanguine Temperament,*** in which the lungs, the heart, and the blood-vessels are constitutionally predominant, is indicated by moderate plumpness of parts, tolerably firm flesh, light or chestnut hair, blue eyes, fair complexion, and ruddiness of countenance. There is great activity of the arterial system, fondness for exercise, and an animated countenance. The brain, in correspondence with the general state, is active.

***The Bilious Temperament,*** having the liver for its basis, is marked by black hair, a dark-yellow or brown skin,

black eyes, moderately full, but firm muscles and strongly-expressed physical outlines. All the bodily functions are characterized by great energy of action, which extends to the brain; and the countenance, in consequence, has decided and strongly-marked features.

***The Nervous Temperament,*** depending upon the predominant influence of the brain and nervous system, has,



Fig. 3.—Motive Temperament. Gov. W.

as its external signs, firm and rather thin hair, thin skin, paleness of countenance, small muscles, and often delicate health. The sensations are lively, and the muscular actions rapid. The whole nervous system, including the brain, is extremely active, and the mental manifestations are proportionally vivacious.

***The Later Classification.***—The classification of the temperaments used by early phrenologists, although correct and valuable in a pathological point of view, is not founded entirely upon a healthy state of the constitution, two of the temperaments—the lymphatic and the nervous—being traceable to abnormal conditions of the bodily organs. We therefore prefer a later classification, which can claim a physiological basis, and is also more simple and comprehensive.



Fig. 4.—Motive Temperament. Miss H.

The human body is made up of three grand systems of organs, each of which has a distinctive general function in the physical economy. They are known as the Motive or Mechanical System, the Vital or Nutritive System, and the Mental or Nervous System.

***The Motive*** or Mechanical System, composed of the bones, the ligaments, and the muscles, forms, by the combination of these three sets of organs, an apparatus of levers through which all the mechanical movements of the body

are effected. The predominance of this system of organs in any individual gives rise to the special expression in the organization of what we call the Motive Temperament.

***The Vital*** or Nutritive System, in like manner consists of three classes of organs—the Lymphatics, the Blood-Vessels, and the Glands—which, through their functions of absorption, circulation, and secretion, are the instruments of the body's nourishment and purification. Where this



Fig. 5.—Vital Temperament. Dumas.

system of organs is predominantly active, a physiological condition is induced which is known in the new classification as the Vital Temperament.

***The Mental*** or Nervous System, forming the medium of connection between the soul, or psychic principle, and the external world, and through which thought and feeling are manifested, is likewise made up of three classes of organs—the organs of Sense, the Brain, and the Nerves. A preponderance of these three sets of organs gives rise to the Mental Temperament.

We have, then, under this classification three temperaments, each of which is indicated by external signs in the physical organization, and exerts a specific influence in the manifestation of mind.

### CHARACTERISTICS OF THE TEMPERAMENTS.

***The Motive Temperament,*** depending upon a superior development of the osseous and muscular systems, is mark-



Fig. 6.—VITAL TEMPERAMENT. QUEEN OF SPAIN.

ed by a figure tall and striking, and tending to angularity. The bones are large, and generally long rather than broad; the face is oblong, the cheek-bones high, the neck rather long, the shoulders broad, the chest moderate, and the limbs long and well jointed. The muscles are hard and firm, the complexion and eyes are generally dark, and the hair dark, somewhat coarse, and abundant. The features

are strongly marked, and their expression is striking. This temperament gives great bodily strength, energy, and love of physical exercise; and its possessors have strongly-marked characters, and are inclined to take the lead in pursuits which employ largely the bodily forces. They are observers rather than thinkers, are firm, self-reliant, executive, and persevering. They are not easily turned aside from their purposes, and often pursue their ends with a reckless disregard of their own physical welfare or that of



Fig. 7.—Mental Temperament. F. A. C.

others. In this temperament the mental organs of Firmness, Combativeness, and Destructiveness are usually large or specially active, and the perceptives generally well developed. (See Figs. 3 and 4).

***The Vital Temperament,*** depending upon the predominance of the organs of nutrition and assimilation, is necessarily marked by breadth and thickness of body, rather than by length. Rotundity is its prevailing characteristic. The shoulders are broad, the chest full; the

abdomen well developed; the limbs are plump and tapering, and the hands and feet are relatively small. The neck is short and thick, and the head and face incline to roundness. The eyes are generally blue, the hair light or auburn, the complexion florid, and the expression of the countenance pleasant and often mirthful. Mentally, persons of this temperament are characterized by activity, ardor, impulsiveness, enthusiasm, and often by vacillation.



Fig. 8.—Mental Temperament. Miss W.

They possess more versatility than firmness, more diligence than persistence, and more brilliancy than depth. They often give way to passion, but are as easily calmed as aroused, and are generally possessed of a cheerful and genial disposition. They are usually fond of good living and jovial company, and through these are often led away into excessive indulgence in stimulants and the pleasures of the table. (See Figs. 5 and 6).

***The Mental Temperament,*** depending upon the predominance of the brain and nervous system, is characterized by a frame relatively slight, and a head relatively large, an oval or pyriform face, a high and pale forehead; bright eyes and expressive countenance, and delicately-chiseled features. The hair is soft and fine, the skin delicate in texture, the voice flexible and somewhat high-keyed, and the expression of the countenance animated and full of intelligence. Persons of this temperament are



Fig. 9.—Combination of Temperaments. Lord Derby.

refined and sensitive in feeling, possess excellent taste, great love of the beautiful in nature and art, and are vivid and intense in their conceptions and emotions. The mind is active and acute and disposed to literary and artistic pursuits. (See Figs. 7 and 8).

***Combinations.***—These primary temperaments, uniting with each other in different proportions, form combinations almost as numerous as the individuals of the human

race. A purely motive or vital or mental temperament can not be found; and in accordance with its predominance there is necessarily a departure from symmetry of development. The best temperamental condition is that in which these three primary elements are harmoniously blended. In this we have perfection of physical constitution, and the best condition for harmony in the mental manifestations. (See Figs. 9 and 10). To estimate correctly the relative proportion in which these temperaments combine in



Fig. 10.—Combination of Temperaments. Mrs. Mott.

any individual, requires considerable observation and practice; and their influence is so powerful in the mental character that they must be taken into account by the student who would obtain correct views of the relation of the physical organism to mental expression.

***Sanitary Influence.*** — Another important influence which modifies the effect of size is health. Every bodily organ is liable to diseases, peculiar to itself or otherwise,

which impair the integrity of its function. The brain, as an organized part of the physical system, forms no exception to this liability to disease, but is subject to abnormal conditions, which either diminish or intensify its action, and which it is very essential to take into account in estimating the power of mental organs. And not only are the mental manifestations affected by disease of the brain, but the body being an organism in which every part exists for every other part as well as for itself, the energy with which the brain performs its function will be largely dependent upon the health and vigor of the other bodily organs. Instances are met with of great mental vigor conjoined with a feeble body and ill-health, but such cases are rare and are due to extraordinary activity of the mental organs themselves, which seem to be capable, in a measure, of rising above the influence of bodily weakness. Yet such persons usually become exhausted suddenly, and their cases by no means militate against the general law, that a sound and vigorous body is essential to the manifestation of a vigorous mind. Were these minds lodged in sounder bodies, there can be no doubt that their activity would be better sustained and efficient.

***Exercise*** of the mental organs, in like manner, is an important element in modifying the effect of size. The gymnast, by judicious bodily exercise, not only increases the size of his muscles, but their strength and vigor in a much greater degree. They become supple, dense, and firm by well-timed exercise. The brain coming under the general law of organic development, is affected by exercise in a manner similar to the muscles. When any mental faculty is called into activity, the blood is determined to that portion of brain upon which its manifestation depends, and it is invigorated and strengthened; its size will thus be

increased by the stimulating influence of the blood, but its energy and facility of action in a greater degree. Hence in estimating the power of a mental faculty from the size of its organ, it is important to know something of the extent of its previous activity. In the proposition as usually laid down with reference to the mental organs, that size, *cæteris paribus*, is the measure of power, these three conditions, *quality*, *health*, and *exercise*, are what are comprehended by the term, "other things being equal."

# CHAPTER III.

## THE STRUCTURE OF THE BRAIN AND SKULL.

THE brain is the organized mass of soft matter which occupies the cavity of the skull; a line drawn from the outer angle of either eye, backward through the opening of the ear, and continued in that direction to the posterior

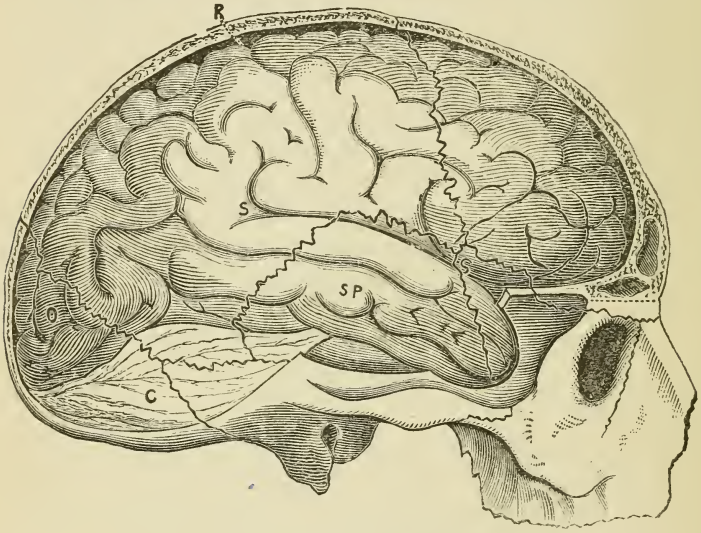



Fig. 11.—BRAIN IN SKULL.

Fig. 11.—Position of Brain in the Skull—showing their relations—from Turner. *S*, Fissure of Silvius; *R*, Fissure of Rolando; *SP* marks the Temporal Region, the letters being on the mid-tempero-sphenoidal convolution; *O*, the Occipital Region; *C*, the Cerebellum. The irregular lines represent the course of the cranial sutures in relation to the brain.

region of the head, will define practically the brain's lower margin (See Fig. 11). It is composed of two substances, a

white or medullary substance, which is fibrous or striated in texture, and a gray or cineritious substance, which enters mainly into the composition of the cortical or convoluted substance of the brain. The surface of the brain is disposed in folds, something like what would appear if a piece of cloth several feet square were puckered and made to occupy but a single foot of surface. This arrangement of folds, or convolutions, appears to be designed to give the gray matter a greater extent of surface, since it completely invests the white or medullary substance, following the folds of the brain, and having a uniform thickness. (See Fig. 12). In certain convolutions of the cortical surface there are three layers of gray matter, but generally there are but two. In the eye of the eagle the nervous surface of the retina is convoluted in form to give it greater intensity of vision, while in animals of ordinary vision it presents a simple convex surface. In man, who possesses the highest order of intelligence, the convolutions of the brain are very numerous, but as we descend in the scale of being they become less and less marked, till in the inferior orders they disappear altogether. Even among individuals of the human race, although arranged upon a general plan, there is found a great difference in the number and depth of these convolutions and the quantity of gray substance, and this difference will be found to correspond with the degree of intelligence. From the fact that the extent of this cineritious matter bears a general relation to the intelligence manifested, it is inferred that this portion of the brain is specially concerned in the exercise of thought, while the medullary matter serves chiefly as a medium of communication.

***Cerebrum and Cerebellum.***—The mass of the brain is constituted of two general parts, the cerebrum and the cerebellum, or the great brain and the little brain,

which in the adult head bear the relation in point of size of one to about eight. The cerebellum lies directly under the posterior portion of the cerebrum, from which it is separated by a strong membrane proceeding from the *dura-mater*, called the *tentorium*. In some animals these two parts of the brain are separated by a thin plate of bone.

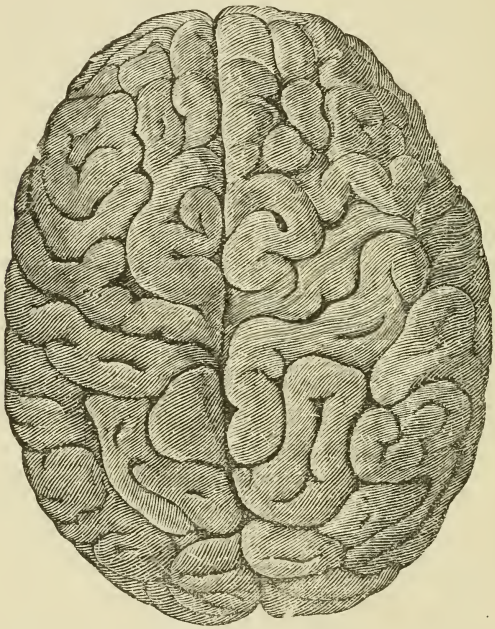


Fig. 12.—View of Brain from above, showing the Convolutions.

The cerebellum has hemispheres, but is not convoluted like the cerebrum; its surface, however, is traversed by many curved furrows which vary in depth. The cerebrum and the cerebellum, as well as all other parts of the brain, are united by the *pons varolii*, a broad mass of fibers mingled

with gray matter which lies under and between the hemispheres, immediately above the *medulla oblongata*, the capital of the spinal column. From the medulla oblongata as a radial point, the medullary fibers proceed to all parts of the encephalon, hence this part of the nervous organism is generally recognized as the medium of communication between the brain and the body.

***Hemispheres.***—The cerebrum is divided into two equal portions, called the right and left hemispheres, by the falciform or scythe-shaped process of the *dura-mater*, the membrane which lines the interior surface of the skull. This process extends downward about two-thirds of the depth of the brain, and runs through its entire length. The hemispheres are connected centrally by the *corpus callosum*, a thick stratum of transverse fibers which penetrate into the substance of the hemispheres; the *anterior commissure*, a small rounded cord of white fibers, connects them anteriorly, and the *posterior commissure*, a similar cord, connects them posteriorly. (See Fig. 13.) Sir Charles Bell says that "whatever we observe on one side has a corresponding part on the other; and an exact resemblance and symmetry is preserved in all the lateral divisions of the brain. And so, if we take the proof of anatomy, we must admit that as the nerves are double and the organs of sense double, so is the brain double, and every sensation conveyed to the brain is conveyed to the two lateral parts, and the operations performed must be done in the two lateral portions at the same moment." There is a general resemblance between the two hemispheres of the brain, but not an exact symmetry as Sir Charles asserts. Professor Henry Gray, in his elaborate treatise on anatomy, says:

"In the child at birth, before the intellectual faculties

are exercised, the convolutions have a very simple arrangement, presenting few undulations." What differences there are, then, in the brains of different men may be assigned to their varying degrees of capacity and culture; and the lack of entire correspondence between the hemispheres of the mature brain may be assigned to the larger share of exercise which the organs of one, usually the left, has in the affairs of human life.

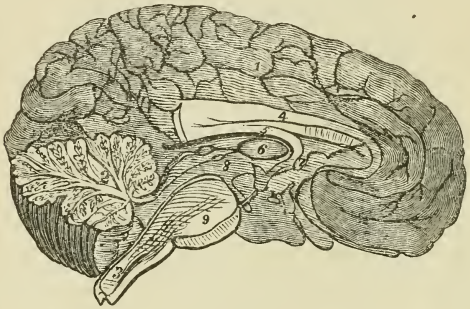



Fig. 13.

Fig. 13. Represents the Mesial surface of a Longitudinal Section of the Brain; 1, Inner surface of the Left Hemisphere; 2, Divided center of the Cerebellum, showing Distribution of the Gray Matter and Arbor Vitæ; 3, Medulla Oblongata; 4, Corpus Callosum; 5, Fornix; 6, Section of the Middle Commissure in the Third Ventricle; 7, Section of the Anterior Commissure; 8, Section of the Posterior Commissure; 9, Pons Varolii.

***The Lobes.***—Each hemisphere is divided by anatomists into three parts, entitled the anterior, middle, and posterior lobes. The lines of separation between these are well-marked only on the under side of the brain, and extend across the hemispheres. In the anterior lobe the intellectual organs reside; the greater part of the middle lobe is occupied by the propensities, and in the posterior lobe are the social and domestic feelings. Some

of the later anatomists, like Gratiolet, Turner, Huxley, and others, finding the old mapping too indefinite, have adopted a division into five lobes, which are named the frontal, parietal, tempero-sphenoidal, occipital, and central, these being bounded by fissures more or less defined. Four of them come in contact with the skull; the last or central is interior, and corresponds to the region known as the Island of Reil.

***The Membranes.***—Between the external surface of the brain and the internal surface of the skull three distinct membranes are interposed. That next the brain, called the *pia-mater*, is a very thin, transparent, and delicate membrane, which sinks down into the folds of the convolutions and serves as a conveyance for the blood-vessels. Above the pia-mater are two layers of a still thinner membrane, called *tunica arachnoidea* because of its resemblance to a spider's web. From the opposed surfaces of these two layers a fluid secretion takes place which lubricates them, and prevents them from adhering to each other. The third and outermost integument of the brain is the *dura-mater*. It is a thin, but strong and opaque membrane, lining and adhering closely to the inner surface of the skull. It is not unlike in appearance and function to the skin of an egg. It secretes the bony material of the skull. If the entire skull of a healthy man could be removed in such a manner as to leave the dura-mater unimpaired, the latter would begin at once to form new bone, and would continue the process until a new skull had been formed. From this it will appear that the hard substance of the skull is subject to the softer parts within it and serves to protect them. The process of absorption and deposition is going on in the substance of the skull continually, and any marked change in the form and size of the brain is indi-

cated usually on the surface of the cranium. The skull adapts itself to the growth of the brain from infancy to maturity, and in old age or disease it suffers a diminution corresponding to the decrease of brain. In cases of hydrocephalus, or dropsy of the brain, when the progress of the disease is slow, so as to allow time for the deposition of

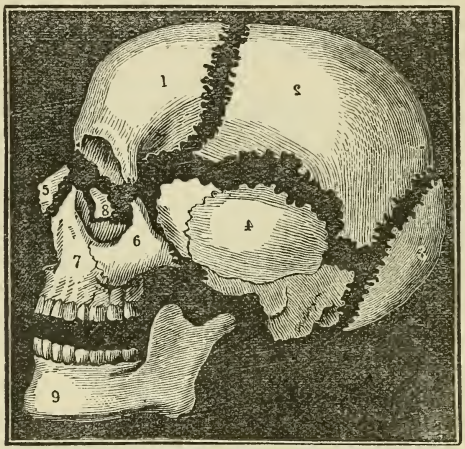



Fig. 14.—Bones of the Skull.

Fig. 14.—Bones of the Skull—lateral view. 1, Frontal Bone; 2, Parietal; 3, Occipital; 4, Temporal, with the Mastoid process attached on its posterior border 5, Nasal; 6, Malar; 7, Superior Maxillary; 8, Ethmoid; 9, Inferior Maxillary 10, Sphenoid bone.

bony material, the skull sometimes grows to an enormous size.

The brain, which is the center of all feeling, is itself quite insensitive. If the integuments of the brain were removed, its substance might be taken out like custard and if care were taken not to press downward upon the *medulla oblongata*, no pain would be experienced.

The circulatory system of the brain is very complete, and adapted to supply it with an unusual amount of blood. According to Haller, one-fifth of all the blood which leaves the heart goes to the brain; Munro, however, estimates it at one-tenth.

***Bones of the Skull.***—The bones of the skull which envelope the brain are eight: One Frontal; two Parietal; two Temporal; one Occipital; one Sphenoid; and one Ethmoid. These bones are united to one another in a very firm manner by a sort of dove-tailing, in which the ragged edges of one fit exactly those of the adjoining bone. The seams which are formed by this union of the bones are called sutures. (See Fig. 14.)

The *Frontal* bone forms the forehead, a part of the roof of the nostrils, and the orbits of the eyes. In childhood it is made up of two principal bones, which gradually grow together. Sometimes, however, it remains double through life — a condition due probably to cerebral excitation. Joined to the frontal bone by the *Coronal* suture, which runs over the top of the head, are the two *Parietal* (side) bones, which form the greater part of the upper and lateral portions of the skull. The line of union between these two bones is known as the *Sagittal* (arrow-like) suture.

The *Temporal* bones are located at the sides of the skull, around the openings of the ears, and are joined to the parietal and occipital bones by sutures. The lower back part of these bones forms the projection directly behind the ear, which is called the *mastoid* process. The *Occipital* bone forms the base and back part of the cranium, immediately above the neck. It is joined to the two parietal bones by what is called, from its resemblance in shape to the Greek letter Lambda, the *lambdoidal* suture. In the central region of this bone a protuberance is found, which is known as the occipital spine.

The *Sphenoid*, or wedge-like bone, is situated in the anterior of the temporal region. And the *Ethmoid* (meaning sieve-like) is a cellular bone, situated between the orbits at the root of the nose.

The greater part of the skull is made up of two plates, between which is interposed a honeycomb substance called the *diploë*, through which small blood-vessels course to different parts of the skull. The diploë is of nearly uniform thickness, so that the two tables of the skull are nearly parallel.

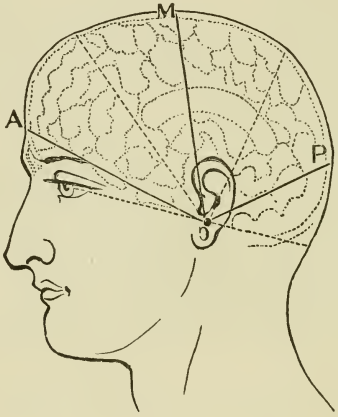



Fig. 15.

***Organic Development — To Estimate It.***—The different organs or centers of mental function may be said to have their origin in the medulla oblongata, and to correspond in size or development with the length of their fibers. The size, then, of a mental organ may be estimated by the distance of its place in the brain cortex from the medulla oblongata. The greater this distance, the greater the expansion and depth of the organ. A line

projected from the opening of one ear to that of the other through the head will pass through the anterior of the medulla oblongata, so that in the living head we may take the opening of the ear as the centre or starting-point in the measurement of organs. Let *C* in Fig. 15 denote the opening of the ear, then *C A* will indicate the development of the brain anteriorly; *C M* its development in the upper or coronal region, and *C P* its posterior extension. The point *A* being near the lower margin of the perceptive group of the intellectual organs, the length of the line *C A* indicates the size of the perceptive organs as compared with the other organs of the intellect, and also shows the development of the intellectual group as compared with the moral group, which may be estimated from the line *C M*, and as compared with the social group of organs which is indicated by *C P*. The breadth of a head and its fullness in the lower lateral regions furnish data for the estimation of the self-protective group. The point *C* being located in the medulla oblongata, imaginary lines may be drawn from it to all parts of the surface of the head under examination, and from their respective lengths the development of the brain parts or mental organs at the outer termini of the lines may be estimated.

They who practice what is popularly known as "bumpology," and attempt to describe character from the irregularities of the cranium, can scarcely avoid error, because they have no anatomical basis of judgment, and, hence, often subject themselves and the science they claim to represent to the imputation of crudity or inexactness. Phrenology has, indeed, suffered much from the misconceptions of its true nature and philosophy which have been obtained by the intelligent from the professor of

"hills and hollows." That the doctrine we advocate is no late "invention" is shown by the following extract from Mr. Nahum Capen's biography of Spurzheim, which was published in 1833 :

"It should be remembered that Gall and Spurzheim do not speak of 'protuberances' or 'bumps;' they require that every one who 'wishes to form an opinion concerning the reality of Phrenology, must make himself acquainted with : 1. The situation of the special organs. 2. With the true meaning of each fundamental faculty of the mind, as adopted in Phrenology. 3. With the different temperaments giving more or less energy to the function of the organs. 4. With the relative development of the four regions of the head, occipital, lateral, frontal, and sincipital. 5. With the proportionate size of the basilar to the coronal portion, and with the proportionate size of the three great divisions of the inferior feelings, superior sentiments, and intellectual faculties. Finally, 6. With the relative development of the special organs in each individual.'"

Sir Charles Bell observes that "the bones of the head are moulded to the brain, and the peculiar shapes of the bones of the head are determined by the original peculiarity in the shape of the brain." There are, however, certain parts of the skull which are thicker or thinner than other parts, and certain integuments which offer a slight obstacle in the way of estimating the size of some of the organs from the external development. Every skull is thinner at the squamous or scaly portion of the temporal bones, and in the super-orbitar plates which form the roofs of the sockets of the eyes; and it is thicker at the ridges of the frontal bone and at the sutures than at other parts of the skull. The occipital spine and the mastoid processes are also prominences on the skull which are not

indicative of the size of the brain beneath; but these ridges and prominences are generally abrupt and angular, and easily distinguished from the broad, rounded swell corresponding to cerebral development. The integuments which cover the skull are of a uniform thickness, except at the occiput and the temples. Experience will enable the practical student to detect and make due allowance for variations in the thickness of the skull, as they depend much upon temperament, and do not form very serious obstacles to obtaining a sufficiently accurate idea of the size of the organs from the shape of the skull.

There are instances in disease and old age, however, in which it is difficult to discover the form of the brain from the form of the skull; but experience and observation on the part of the examiner will guide him safely in dealing with such cases. The bone of the skull becomes thin over organs which are energetically and persistently exercised, but the higher temperature at such portions of the brain, as well as their size, affords a clew in estimating the power of the organs.

***Frontal Sinus.***—Besides these peculiarities of modification to which the brain and skull are subject, there is the much mooted difficulty of the *frontal sinuses*, which the opponents of Phrenology have made much of as an obstacle in the way of delineating character from the surface of the head. The *frontal sinuses* are small cavities in the frontal bone near the root of the nose, formed by the separation of the two plates of the skull (See Fig. 11). They are deemed by some a kind of sounding-board for the voice, but do not extend up above the base of the brain till about the time that the voice changes. Up to this period they form no obstacle in estimating the size of the organs situated behind them. After this period, however,

they extend upward, and may cause some uncertainty in regard to the size of three or four organs located in their vicinity, as they are by no means constant in dimensions, being dependent upon the person's temperament. They should, generally, be confined in their influence to the three or four organs located behind them. To argue as some have done, particularly Sir William Hamilton, that the existence of a *frontal sinus* is an insuperable objection to Phrenology in general, is, as Mr. Combe has well remarked, about as logical as to speak of a snow-storm in Norway obstructing the highway from Edinburgh to London. In fact, the difficulties which the frontal sinuses oppose to the exact estimation of the size of the few organs located immediately behind them may be overcome to a very great extent by practice and observation. The voice and the bony structure of the individual afford indications of their size, and where a prominence exists on the skull from a large frontal sinus, the elevations are abrupt and ridgy, and lack the even swell which is indicative of cerebral development. It should be remembered in estimating the extent of the sinuses to obtain an approximate idea of the form of the brain from the contour of the skull, that the difference in parallelism between the external and the internal tables of the skull is usually insignificant when compared with the difference between a large and small organic development. In most of the former cases the difference rarely exceeds one-eighth of an inch, while the difference between a large and small development of the organs and sentiments may amount to more than an inch. The difficulties presented by the sinuses, therefore, do not invalidate the general correctness of the phrenological mode of investigation, since in extreme cases they are practically inoperative. As Dr. Gall was led to the discovery of Phrenology

by observing the concomitance of certain strongly-marked mental characteristics with an unusual development of certain portions of the brain, so should the mental organs be tested by similar cases whenever the integrity of the system is brought into question.

Let us now recapitulate the ground over which we have passed, that the reader may have a clear view of the fundamental principles comprehended by the phrenological system, and thus be prepared to enter upon the special study of the organs. It has been shown that the brain is the organ of mind; that it is composed of a plurality of organs, and that the size of these organs, other things being equal, is the measure of their power. We have considered the physiological influences which modify the effect of size; have taken an anatomical survey of the brain and its integuments; have indicated the recognized method of ascertaining the organic development; discussed the main difficulties which lie in the way of estimating with exactness the size of different parts of the brain from an inspection of the head; and, finally, have arrived in a legitimate manner at the conclusion that it is possible to determine the power of the different mental faculties from the external contour of the living head, and that there is nothing in the phrenological mode of investigation that is opposed to the strict rules of inductive philosophy.

# CHAPTER IV.

## CLASSIFICATION OF THE FACULTIES.

In his discoveries of the functions of different parts of the brain, Dr. Gall was directed almost entirely by observation. He did not previously map out the skull, as some have supposed, and distribute the organs upon it in accordance with some theory or scheme which he had previously conceived, but the locality of each organ was discovered as the result of careful and extended study, his attention being drawn in many cases by a passing incident to the concomitance of certain mental characteristics with certain configurations of the head. Many of the organs were discovered separately, and without any reference to their correlated functions, but subsequently it was found that there was a natural order in their locations by which organs possessed of related functions are associated or grouped in the same region of the head. It is to Dr. Spurzheim's highly philosophical intellect that the first presentation of Phrenology as a classified system is due. He recognized the normality of the arrangement of the organs and divided them into two Orders, which he entitled (1). Feelings or Affective Faculties, and (2). Intellectual Faculties. The first Order he divided into two Genuses: (1). Propensities; (2). Sentiments. The second Order he divided into three Genuses: (1). External Senses; (2). Perceptive Faculties; (3). Reflective Faculties.

We regard it as more convenient to arrange the organs

under three general heads or orders, assigning them to as many different regions of the brain, viz.: The region of Propensity, which lies in the lateral and posterior parts of the brain; the region of Intellect, which corresponds with the forehead; and the region of the Moral Sentiments, which occupies the upper and coronal parts of the head. There are, however, several faculties which can not, strictly speaking, be included in any one of these three classes, but form subdivisions, being related to two of the general classes, or even to all three.

The Propensities, according to Dr. Spurzheim, are the

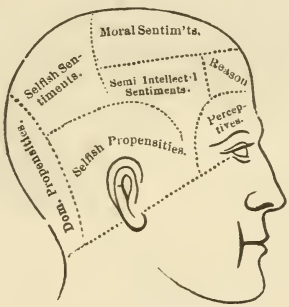



**Fig. 16.—Groups of Organs.**

sources of impulses which incite only to certain actions. The Sentiments are the sources of other feelings, not limited to inclination alone, but which have an emotion of a peculiar kind superadded.

***The Propensities*** may be divided into two sub-groups, the Domestic Propensities and the Selfish Propensities.

***The Domestic Propensities*** are grouped together in the postero-parietal and occipital portions of the head. They are Amativeness, Conjugality, Philoprogenitiveness, Adhesiveness, and Inhabitiveness. (See Figs. 16 and 17.)

This group constitutes man a social and domestic being. It is the foundation of his attachment to family, home, country, and friends.

***The Selfish Propensities*** are located at the sides of the head in the lower parietal and temporal regions, around the ears. They are Vitativeness, Combativeness, Destructiveness or Executiveness, Alimentiveness, Acquisitiveness,

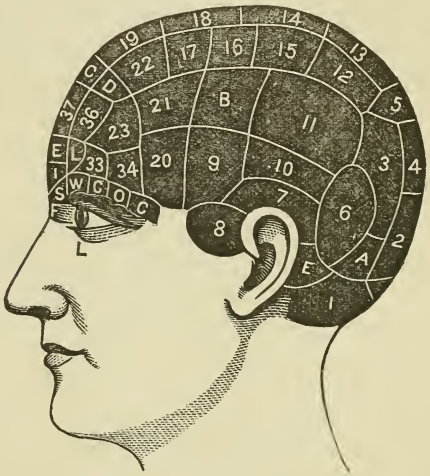



Fig. 17.—Relation of Organs.

and Secretiveness. (Figs. 16 and 17). These organs are related to the maintenance of individual existence. They lead the individual to make provision for his animal wants, and to assert and defend his rights of person and property.

***The Sentiments*** may be divided into three sub-groups, the Selfish, Moral, and Semi-intellectual Sentiments.

***The Selfish Sentiments*** are located in the middle and upper back parietal region, just above the Domestic Pro

pensities. They are Cautiousness, Approbativeness, Self-Esteem, and Firmness. It is their function to manifest those feelings which are known by the terms prudence, ambition, independence, and stability of character.

***The Moral Sentiments*** are grouped together in the superior frontal and superior parietal region; in other words, at the top of the head and forward of the Selfish sentiments. They are Conscientiousness, Hope, Marvelousness, Veneration, and Benevolence. (See Figs. 16 and 17.)

These constitute man a moral and accountable being, giving him the disposition to be of service to his fellow-man, to worship his Creator, and to expect a future state of existence.

***The Semi-Intellectual Sentiments*** are located in the forward part of the side-head, below the Moral sentiments. They are Constructiveness, Ideality, Imitation, and Mirthfulness. These faculties supply the love of the beautiful in nature and art, and the ability to construct whatever is essential to our comfort, or ministers to the conveniences and elegancies of life. They are self-perfecting and elevating in their tendencies, and adapted to co-operate with the Moral sentiments in ennobling human nature.

***Intermediates.***—By some writers, Human Nature and Agreeableness, whose place and function are of comparatively recent designation, are classed with the Semi-intellectual faculties. We, however, are inclined to assign them to an intermediate place in correspondence with their evident properties. Sublimity, also of recent designation, having been set off from the Ideality of the early phrenologists, may be included with the Semi-intellectual sentiments of faculties.

***The Intellectual Faculties*** may be divided into two genera, the Perceptive and the Reflective faculties. The

Perceptives bring man into direct communication with the external world, and give him a knowledge of the existence, the qualities, and the singular relations of the things which exist around him. The Reflectives compare and classify the facts collected by the Perceptives, trace out their more remote relations, and supply the power to reason.

***The Perceptive or Observing Faculties*** are Individuality, Form, Size, Weight, Color, Order, Calculation, and Locality. The organs of these faculties are located in the lower frontal region of the brain over the eyes, and their extent in general is indicated by the prominence of that region. (Figs. 16 and 17). Their functions relate to the properties and qualities of external objects. As a subclass we have :

***The Semi-Perceptive or Literary Faculties,*** situated in the medio-frontal region, are Eventuality, Time, Tune, and Language. These enable us to treasure up and communicate the facts collected by the Observing faculties, and give the idea of duration in time and harmony in sound.

***The Reflective or Reasoning Faculties,*** situated in the upper portion of the forehead, are Causality and Comparison. Their function has already been described.

Besides the faculties which have been enumerated, there is Continuity, which is accepted as an organ distinct from Inhabitiveness by many Phrenologists, as bearing some relation to the whole mental organism, and which can not be strictly included in any group. Of the admissibility of Continuity we shall have something to say hereafter.

These are the elements which enter into the composition of the human mind. They, or the most of them, are the ultimate principles of mind, in a similar sense, as in the material world the chemical elements are the ultimate principles of matter. In chemical science the elements

of matter were not all discovered by the same individual, but by the successive labors of many investigators. So the science of Phrenology, beginning with the discovery of a single element of mind, has received additions from time to time, till now there are thirty-eight well-established mental organs and faculties. There probably are elements of matter yet undiscovered, which future investigations will bring to light, and it is no less probable that our knowledge of the properties and relations of those which are known will increase as human observation becomes more accurate and extended. In like manner it is probable that future investigators will discover mental organs and faculties which are at present unknown, and that much will be added to our knowledge of the modes of activity and the combinations of those which are already established.

***Organs and Faculties.***—When we speak of a mental faculty, we mean that particular quality of mind which results from the activity of a mental organ. A mental organ is a portion of brain which is structurally adapted to the manifestation of a distinct mental faculty. The organs are all double in correspondence with the double or hemispherical constitution of the brain. Each organ has some definite relation to certain external objects which, when presented for the mind's consideration, excite that organ to activity, and so constitute its natural stimulus. Every organ may also become active from the mere stimulus of blood, from external injury, and disease. But, by whatsoever means it may be rendered active, an exhibition of the particular faculty or quality of mind which it is its function to manifest is natural and unavoidable. Each faculty has a legitimate sphere of activity, within which it is capable of ministering to the comfort and enjoyment of the individual. But every faculty is liable to transgress its bounds, either

through over-excitement or the deficiency of some other restraining or compensating power of mind, and thus abuse may result. If all the mental organs were harmoniously active, the effect would be complete consistency of conduct, and normality of life. But as a rule, they exist in very different degrees of development, and hence the great diversity of talent and character by which men are distinguished.

# CHAPTER V.

## THE PHYSICO-PRESERVATIVE OR SELFISH ORGANS.

In our analysis of the mental organs and faculties, we will begin with those which relate to the maintenance of individual existence.

### ALIMENTIVENESS.

This organ lies in the anterior of the convolution lying at the base of the middle lobe, and corresponding with the antero-inferior part of the temporal bone of the skull.



Fig. 18.—Alimentiveness Large.

In the diagram (Fig. 17, which shows the relative position of the different organs) it is located at, and in front of, the upper portion of the ear. When large, it gives breadth and fullness to that region of the head. (See Figs. 18 and 19.)*

* The star (*) indicates the position of the organ approximately.

It is the function of this organ to give a desire for food and drink. The new-born babe makes the requisite exertion to obtain nourishment from its mother; the chicken picks up seeds as soon as it is out of the shell, and the young of all animals are impelled by an innate impulse, each in its own way, to take nourishment. If hunger or the organic need of the body alone impelled animals to take food, they would have no desire for food when the natural wants of the system were satisfied; and it would be difficult to explain the great enjoyment which some men derive from the pleasures of the table, and which impels



**Fig. 19.—Alimentiveness Small.**

them by an irresistible desire to surfeit themselves with eating, though they have learned by repeated experiences the injurious effects of such indulgences. The love of eating is sometimes characteristic of whole families; others, again, are never tempted to gluttony.

It is in striking confirmation with the phrenology of Alimentiveness, that the olfactory nerve takes its rise in the convolutions which contain this organ.

Many instances of voracity are recorded by medical writers, occasioned by the abnormal activity of this organ. The illustrious Charles V., of Germany and Spain, was

disposed to inordinate eating, and ruined his constitution by his excesses in this respect. The marble bust of him, which still exists, shows a remarkable fullness in the part of the brain allotted to Alimentiveness. A woman, called Denise, is recorded by Mr. Combe as possessing the organ enormously developed, and such an insatiable appetite for food that in infancy she ate four times more food than other children of the same age. As a school-girl, she devoured

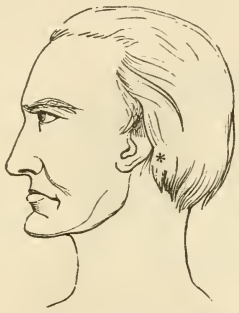


Fig. 20.—VITATIVENESS LARGE.

the bread of all the scholars; and, later, when at the Salpétrière, eight or ten pounds of bread were daily needed to satisfy her habitual hunger. Besides this, she was seized two or three times a month with special attacks of hunger, during which she devoured twenty-four pounds of bread. Happening one day in the kitchen of a rich family when a dinner party was expected, she devoured, in a very few minutes, the soup intended for twenty guests, along with twelve pounds of bread. On another occasion she drank all the coffee prepared for seventy-five of her companions at the Salpétrière. Other cases of voracity are given, which were accompanied with pain or heat in the locality of Ali-

mentiveness, and where the organ was found diseased after death.

VITATIVENESS

occupies a position behind the ear, nearly corresponding with Alimentiveness, which is in front of it. Anatomically, the organ is situated in the part of the brain adjacent to the mastoid process of the temporal bone. (See Fig. 17, space E). It is the function of this organ to manifest a love of existence for its own sake, irrespective of the advantages or disadvantages which attend it; and by the

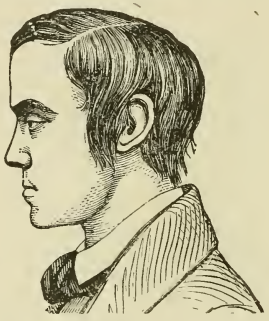


Fig. 21—VITATIVENESS SMALL.

strong desire to live which it gives, it often furnishes a powerful aid in resisting the encroachment of disease, weariness, and suffering.

That there is a great difference among men in regard to the strength of the desire for existence is a matter of common observation. Some love life so earnestly that they look upon death as the greatest evil which can befall them, and tenaciously cling to life even when they have little to hope from its continuance but unhappiness and pain. Others, again, are unable to appreciate this intense

love of existence; they look upon pain and the parting from friends as the only evils attendant upon death. These opposite characteristics appear in men of the most different characters in other respects. The religious, who look upon death as the vestibule to a life of unending joy, often possess the desire to live even more strongly than those who fear, but possess no hope for the future, and who look upon death only as a leap in the dark. (See Figs. 20 and 21).

The Hindoo skull is remarkably narrow in the region of the organs which have reference to the maintenance of existence, and it is said of that people, that their indifference to life is so great, that if fatigued on a journey or march, they ask no greater boon than to lie down and sleep, even at the risk of being devoured by wild beasts, or overtaken and slain by the enemy.

The function and location of this organ have been determined chiefly through the investigations of American observers.

### COMBATIVENESS.

This organ is located backward from the opening of the ear in the second temporal convolution, according to Ecker's mapping, or more precisely, at the postero-inferior angle of the parietal bone, and adjoining Vitativeness. (See Fig. 17—6). The history of its discovery by Dr. Gall is interesting, but as the scope of our present work precludes us from entering into that branch of the subject, we can only refer the reader to the general literature of Phrenology as elaborated in the works of Drs. Gall, J. P. Browne, Bruyéres, and others. Its function is to manifest the spirit of opposition and defense. It gives the tendency to resist all encroachment upon our rights of person and property, and the courage to meet and overcome whatever

opposes our progress. Such a faculty as this is clearly essential in a world where courage and energy of character are needed to meet the difficulties which surround us on every hand, and in which it is often necessary even to fight to maintain ourselves in existence. The pugnacious brawler, the courageous soldier, the bold controversialist, and the fearless reformer, are sustained by the spirit which proceeds from a large development of this organ. The direction of its manifestation depends altogether upon its combination with the other faculties. If

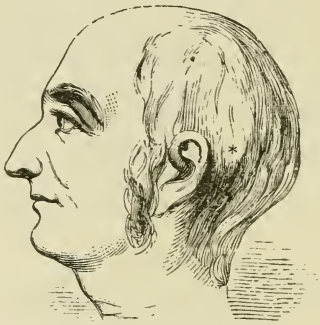


Fig. 22.—Combativeness Large.

an individual with large Combativeness be possessed of a low and strongly animal organization, he will be a natural brawler and fighter. If the intellect be well developed in combination with large Combativeness, the person will be disposed to engage in controversies and discussions of an intellectual character; and if the Moral sentiments are active, large Combativeness will give him the moral courage to contend for what he deems to be the right. (Fig. 22).

Where the organ is small the individual will be pusillanimous, and inclined to shrink from those situations

in which it may be necessary for him to oppose the prejudices, and encounter the hostility of others. In Fig. 21 the organ is seen to be small.

Pinel mentions a case of disease in the region of this organ in which the patient who, during his lucid intervals, was mild and even timid in his manners, became, during the fit, extremely pugnacious, and manifested a disposition to irritate and fight with uncontrollable violence all who approached him.

This faculty is clearly manifested by the lower animals. The bull-dog and the game-cock are, perhaps, the best examples of pure Combativeness. They will fight against any odds, so long as they have the power to show resistance. A great difference exists between the width of the heads of the greyhound and the bull-dog in the region of this organ, and their dispositions correspond with their developments. Dr. Gall says that the first interview he ever had with a devoted amateur of cock-fighting, the latter thought he was imparting a great secret when he pointed out to Dr. Gall as the distinguishing mark of good fighters, a great breadth of the head, a little in front of the ears. The military recklessness of Charles XII., of Sweden, finds a confirmation in the recognized portraits of him, the indications of Combativeness being marked in point of its large size, while Cautiousness, on the contrary, is very small. Of George Washington, it was said by Jefferson, that he was insensible to the influence of fear, but with a large organ of Combativeness, Washington possessed a good development of Cautiousness and other faculties which contribute to prudence and discretion. The cast of Dean Swift's head shows Combativeness very large, and that celebrated author's life and writings are replete with episodes of boldness and intrepidity.

DESTRUCTIVENESS OR EXECUTIVENESS.

This organ is situated in the temporal convolutions immediately above the ear, and when large, gives width to the head at this point. (See Fig. 17–7). Its function is to give the disposition to destroy or overcome that which is noxious or harmful, to inflict pain if necessary for self-preservation, or to the carrying out of our purposes. In other words, it contributes thoroughness and executive energy —the spirit to accomplish. According to its development, and its combination with other faculties, it imparts to character the disposition of cruelty, harshness, severity, or



Fig. 23.—DESTRUCTIVENESS LARGE.

executiveness. It is adapted to place man in harmony with the order of nature, by which death and destruction are necessary for the perpetuation of whatever exists, or for the maintenance of the desirable. The birds of the air, the fishes of the sea, and the beasts of the field have among them carnivorous classes destined to prey upon weaker species, and appropriate their bodies for food. Constituted as nature is, this arrangement is essential, not only to the existence of the weaker animals, which would otherwise multiply beyond the sustaining power of their

natural food supply, but also to the existence of the carnivorous animals themselves. Man, whatever his original habit, is now practically carnivorous; and there are many varieties of animals whose flesh is esteemed nourishing. He is also surrounded by ferocious beasts, which it is often necessary to destroy in order that he himself may not be destroyed. It seems essential, therefore, that there should be a mental power to place him in harmony with this condition, and this power is found in the organ of Destructiveness.

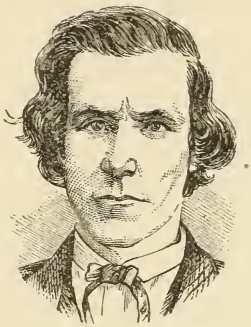


Fig. 24.—Destructiveness Small.

But it has a wide sphere of activity beyond this, inspiring, as it does, energy, executive ability, sternness, and severity, which are absolutely essential to success in many important enterprises incident to human life. We can not conceive a great and influential character without a good endowment of this faculty. Combativeness gives courage to engage in difficult undertakings; Destructiveness, thoroughness in their execution.

This organ is always large in deliberate murderers, and in the pictures of the cruel soldiers and blood-thirsty char-

acters of history we find an unusual width of head, at the location of this organ. In the antique busts of the inhuman Nero and Caligula, and also of the insatiate Sylla, the part of the head lying contiguously to the ear, is conspicuously protuberant. Such is the case, also, in the best representations of Henry VIII., of John Knox, the fiery reformer, and Oliver Cromwell. We have but to contrast the heads of these men with the accepted portraits or busts of such historic characters as Melancthon, Robert Owen, Fenelon, Bishop White, and the poet Crabbe, to appreciate, from an organic point of view, the wide differences which existed in the characters of the former as compared with the latter eminent names of history.

The great difference between the width of the heads of the carnivora and the graminivora can not have escaped the observation of the most careless. The heads of the hawk, eagle, bear, lion, and tiger, and those of the pigeon, deer, horse, and sheep, differ in this respect fully as much as these two classes of animals differ in character.

In disease of this organ the disposition to destroy is often manifested with the greatest violence. Mr. Combe cites from "Sketches of Bedlam," the case of Pat Welsh, who, for twelve years, during which he had been deranged, uniformly evinced a character of desperation, vengeance, and sanguinary cruelty, scarcely conceivable, even in madness. He killed three persons during his confinement, although great precautions were used in guarding him. His propensity to mischief, malice, and personal abuse was as incessant as his taste for bloodshed and slaughter. Though his hands were confined in an iron girdle about his waist, he managed to break, within two years, about seventy panes of glass. He effected this by standing on a form near the window, and poking the handle of the

iron spoon, which he held between his teeth, through the meshes of the ironwork which guarded the window.

Probst, whose brutal murder of the Deering family in Pennsylvania shocked the country a few years since, exhibited a great breadth of head at Destructiveness, as well as a very low organization in general. Murder, the wanton, unnecessary destruction of life and property, are manifestations of an abnormal condition in the constitution or relations of this organ. A better name for it, we think, would be Executiveness, or some other term which carries the idea of performance, or the effective accomplishment of work or purpose.

### SECRETIVENESS.

The organ of this propensity is situated in the region of the brain, bordering on the central part of the inferior edge of the parietal bone, immediately above Destructiveness. (See Fig. 17–10). As its name implies, it gives the disposition to conceal within the mind, its thoughts, feelings, and purposes. In its normal activity, this faculty exercises a judicious restraint upon the other faculties, until the intellect shall have had opportunity to judge of the propriety of their manifestation. Every faculty tends involuntarily to activity, on the presentation of its natural stimulus. Thus, Amativeness, Combativeness, Self-Esteem, and Love of Approbation, becoming active, give rise to their appropriate feelings; and if outward expression were allowed to these on all occasions, society would be disfigured by a muddle of rude and disgusting improprieties. "A fool," says Solomon, "uttereth all his mind; but a wise man keepeth it till afterward." In the common affairs of life a reasonable endowment of this faculty is essential in almost every undertaking. It confers the prudent dis-

position of keeping our affairs to ourselves, when nothing would be gained by communicating them.

Where the organ is small, the individual will be frank and outspoken, and characterized by a deficiency of tact. He will say many things, on the spur of the moment, which he will afterward wish unsaid, and frequently be otherwise embarrassed by his openness. On the other hand, when the organ is unduly active, it gives a love of intrigue and concealment for their own sake. Such an individual will be sly, artful, treacherous, and deceitful, if the faculty be



Fig. 25.—Secretiveness Large.

not held in check by compensating sentiments. It is usually large in thieves, its ill-regulated activity producing the capacity for sly cunning, which distinguishes that class of rogues. It was large in the woman Gottfried, who is quoted by many authors, and co-operated with her large Destructiveness; she murdered by poison—a mode of committing the crime usually employed by secretive offenders against law and humanity—both parents, her children, two husbands, and six other persons; and she still further manifested the activity of this faculty by feigning the

most poignant grief at the bedside of her victims, while she was in reality gloating over their protracted suffering.

It was very large in Warren Hastings of East Indian infamy. In diplomatists and statesmen of eminent sagacity it is large, while in men of marked philanthropic disposition it is usually small. In Fig. 24 it appears small.

This faculty is well shown in the broad heads of many of the lower animals, especially the feline, among which are the cat, fox, tiger, etc.; giving them the slyness which they possess in the mode of taking their prey. The fox is noted for his cunning, and his head is very broad in the region of this organ.

### ACQUISITIVENESS.

This organ is in the temporal region of the brain, its place corresponding with the antero-inferior angle of the parietal bone. (See Fig. 17–9). It lies directly in front of Secretiveness. By taking the middle of the top of the ear as the starting-point, and moving the finger vertically about an inch, and then forward an inch, its position on the living head will be ascertained with a good degree of accuracy.

Animated nature has many members below man, which, like the squirrel, the bee, and the ant, are distinguished for their instinct to accumulate and hoard what serves them as food. So man, as the microcosm, possesses an innate faculty which is analogous to that instinct. In Acquisitiveness we have the mental organ which is adapted to man's needs in a world where provision for his daily physical wants is not supplied by nature continuously; but where it is necessary to store up during the time of harvest enough to supply his wants, while the earth is wrapped in snow, and can yield him no support. He is also liable to casualties and sickness, which disable him for making individual exertion for his maintenance. Old age, too, if he live,

will bring upon him weakness and infirmities; and unless he makes proper provision for these times of incapacity, he will be subjected to much suffering. In its normal activity this faculty leads to the storing up of the surplus after present wants have been supplied. It prompts to frugality, diligence, and economy, and is thus the source of wealth and all its attendant advantages. It is, however, a mere propensity to acquire and accumulate. What direc-



Fig. 26.—Acquisitiveness Large.

tion it will take depends upon its combination with other faculties; it may manifest itself in a disposition to make collections of books, works of art, or specimens in natural history; but as wealth is the means of gratifying the greatest number of our most active desires, it is usually manifested in the accumulation of property.

When unduly active, it produces the niggardly, parsimonious spirit, which refuses all calls of charity, however

urgently expressed, higgles over every expenditure, and stints itself in the use of the comforts of life, that it may heap up treasures far beyond its capacity to use or enjoy.

When deficient, on the other hand, it leads to prodigality and improvidence. The individual will then live from "hand to mouth," spend as he goes, and take no thought for the future. If he have abundance, he will be wasteful and extravagant, and if he be stinted, he will accommodate himself as best he may to his circumstances. He will be dependent all his life long upon his daily labor for daily bread, and in the feebleness of age will come upon his friends or the town for support. In Figs. 24 and 35 it is small.

From finding this organ uniformly large in thieves, Dr. Gall unfortunately named it the organ of theft. But it is only when combined with large Secretiveness and deficient Conscientiousness, and lacking other moral perceptions, that it produces the thievish character. Giving an instinctive desire to possess, the strength of the desire will be measured by the size of the organ, and where there is a deficiency of the moral and restraining powers of mind, this propensity may manifest itself in taking the property of another, wherever it may be found, without any regard for right or justice.

Kleptomania doubtless arises from the inordinate or diseased activity of this organ. There are not a few persons, if we credit the criminal reports published by our daily newspapers, who are, to use the language of Dr. Rush, "moral to the highest degree as to certain duties, but who nevertheless live under the dominion of some one vice." In this connection, he relates an instance of a woman who was exemplary in her obedience to every command of the moral law, except one—she could not re-

frain from stealing. What made this vice the more remarkable was, that she was in easy circumstances, and not addicted to extravagance in anything. Such was the propensity to this vice, that when she could lay her hands on nothing more valuable, she would often at the table of a friend fill her pockets secretly with bread. She both confessed and lamented her crime.

Men distinguished for business capabilities and the acquirement of wealth have large Acquisitiveness. This was the case with Mr. Girard, Mr. Astor, and Mr. Stewart. George Peabody also possessed a conspicuous development of the organ.

In the lower animals this faculty is very clearly manifested by some, and by others not at all. The squirrel stores up provisions in the hollow of a tree, that he may have the means of sustenance when the natural sources of his food supply are sealed up by the frosts of winter. Our domestic animals, on the other hand, make no provision for the winter whatever, and would starve during its continuance but for the providence of man. If a quantity of corn were thrown down to a squirrel and a hen, the latter would eat of it until her appetite was satisfied, and then walk off, entirely indifferent as to what became of the remainder. The squirrel, however, would scarcely wait to satisfy his present hunger, until he had carried the whole to a place of safety, where he could draw upon it in the future. The squirrel thus distinctly shows a faculty of which the hen is destitute, and which instinctively prompts it to store up for future use the surplus of the present.

Among the extreme instances of the morbid development and activity of this faculty among men, are those of Burke and Hare of Edinburgh, who murdered people for

the sake of selling their bodies to anatomists. In the case of Burke, the organ of Benevolence is fairly developed, being conspicuous in a moral organization generally low; and it is said that he could not bring himself to the point of killing his victim, unless excited by alcohol. In persons eminent for charitable labors and self-sacrificing philanthropy, Acquisitiveness is usually moderate.

# CHAPTER VI.

## OF THE INTELLECT.

The faculties composing this order take cognizance of the existence, qualities, and relations of external objects. They correspond with the "knowing faculties" of the metaphysicians. First, we would call the reader's attention to the Perceptive group, of which one of the most important elements is

### INDIVIDUALITY.

This organ is situated in the first frontal convolution, at the anterior extremity of the frontal lobe, and lies contiguously to that part of the cranium immediately above the root of the nose. (See Fig. 17–1). It imparts the disposition to examine things as individual existences, without any reference to their qualities or purposes. Dr. Gall first named it the Sense of Things, and Dr. Spurzheim subsequently called it Individuality. It is the specializing faculty, taking cognizance of things—a tree, a house, etc., as a simple existence. The other perceptives give us our notions of the qualities of objects, as their form, size, weight, color, etc. Individuality may be termed the *noun*, or object faculty; while Eventuality is the *verb* faculty, and specially concerned with the movements, changes, and history of objects.

The great differences in the power of observation exhibited by men, depend chiefly upon the development

of this faculty. Some are able to give an accurate description of objects which they have seen in their daily movements; and others can scarcely afford an hour's entertainment in recounting the things which they have observed in a month's travel.

Through its power of individualizing, this faculty is an important element in a practical character, supplying the disposition to attend to the details and minutiæ of a subject. Those writers and artists who have it well-developed,

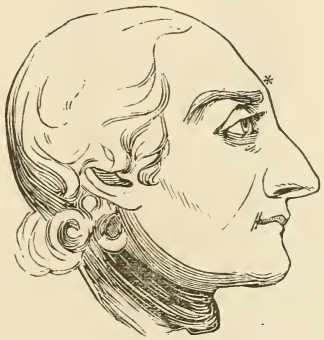


Fig. 27.—LAVATER. INDIVIDUALITY LARGE.

are able to give a distinctness and vividness to their conceptions, which never fail to command attention. Robinson Crusoe and Gulliver's Travels may be instanced as books remarkable for distinctness of detail in narration; and in the heads of De Foe, Swift, and also of Dickens, this organ was greatly developed.

When large, Individuality imparts projection and breadth to the part of the forehead between the eyebrows, and in those persons who have it small the eyebrows are

near each other, and the center of the forehead appears compressed. In Fig. 21 it is of moderate size.

FORM.

The place of this organ is contiguous to the *crista galli*, directly below Individuality, just over the inner angle of the orbits (see Fig. 17–F), and its size bears relation to the space between the eyes. When large, the eyes are



Fig. 28.—FORM LARGE.

wide apart, and the eyeballs appear to be pressed downward and sidewise.

Dr. J. P. Browne, of Edinburgh, says: "There may be a great distance between the eyes, with no great development of the Form, because the ethmoid bone is sometimes but rarely very broad, and the eyes consequently much separated; but in such a case the indications of brain development in that region differ in such manner that the phrenol-

ogist who is conversant with cranial anatomy, can generally determine the true condition."

It is the function of this organ to take note of and remember shapes and configurations. Dr. Gall named it the organ of Knowledge of Persons, because he invariably found it large in those who possessed a special aptitude for remembering faces. In his own head this organ was very deficient, and he could with difficulty remember the coun-



Fig. 29.—Form Small.

tenance of a stranger who had sat next to him at table, so as to recognize him afterward.

It is said of Cuvier, that the form of an animal or a bone, once seen, never left him, but was always present in his mind for comparison with objects of a similar nature which might afterward come under his observation. He was thus enabled to make his wonderful discoveries in comparative anatomy.

This faculty is essential to the draughtsman, portrait-painter, the designer, and to all occupations which have to do with a knowledge and judgment of shape. In Michael Angelo it was extraordinarily large; in William Cobbett, the English author, it was small, and but moderate in Byron.

The Chinese are remarkably endowed with this faculty, which corresponds with their well-known mechanical dexterity and capacity for mastering a language which has a different character for nearly every word.



Fig. 30.

In animals this faculty gives them the ability to distinguish their masters, or those who have been kind to them, and to remember them even after a separation of years. All the animals of a herd know each other, and it is said that when a strange bee undertakes to introduce himself into a hive, composed of from twenty to eighty thousand bees, he is recognized, and driven out or killed. Children with large Form learn to read much more easily than those

in whom the organ is small, and are better adapted to the ordinary mechanical trades than the latter.

SIZE.

The size of a thing is obviously a quality very different from its form. Two eggs, for instance, may be exactly alike in form, but differ greatly in size; and as one of these

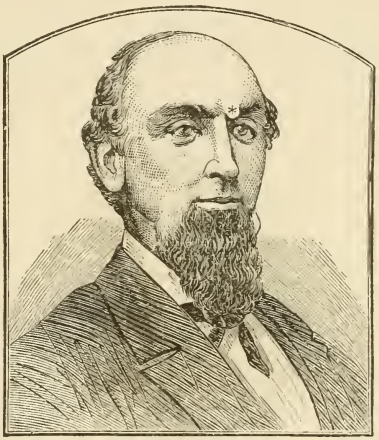


Fig. 31.—SIZE LARGE.

kinds of knowledge is conceivable without the other, it is not unreasonable to suppose that they may originate in different cerebral organs. This fact has been demonstrated by numerous observations, which have established the location of an organ, called Size, adjoining Form, on each side of Individuality, at the internal extremity of the arch of the eyebrow. (See Fig. 17–S). Its function is to give the idea of dimension, distance, and space in general. It is essential to the landscape painter and the draughtsman,

and to skill in all occupations which have to do with dimension, distance, and perspective.

A tutor in the family of Sir George Mackenzie once said to Mr. Combe, while looking at a landscape: "That seems to me a plane surface, exhibiting difference of light and shade. Now, I am told that to some people different parts appear at different distances, and that to them it appears to have a fore and back ground." He attributed his inability to see the landscape as other people to his want of mathematical education; but an examination of his head, revealed the fact that the organ of Size was decidedly lacking.



Fig 32.—Size Small.

On the other hand, in Mr. Douglas, a landscape painter, this organ was very large, and when a mere child, he was so struck with the apparent difference in the width of the near and far ends of the ridges of a plowed field, that he crawled across it, before he could well walk, to measure the actual distance with a stick, and was greatly surprised to find that no difference existed.

In the casts from the heads of Newton, Herschell, and George Law, this organ is conspicuous; and it will be found

well marked in the foreheads of men who have acquired reputation as engineers and builders.

WEIGHT.

This organ lies next to Size in the frontal convolutions, and its place on the superciliary ridge is about one-third the length of the ridge, outward from the root of the nose. (See Fig. 17–W). It is to the reasoning and investigation of Dr. Spurzheim that the discovery of Weight is due. When large, it gives an overhanging appearance to the brow at this point. The weight of bodies is a quality quite



Fig. 33.—WEIGHT LARGE.

independent of form and size, since objects may be alike in these respects, but differ greatly in their specific gravity. Man and the lower animals possess an instinctive capability for adapting their movements to this force, so that whether walking or running they are able to preserve their equilibrium; and this capability arises from this organ. Hence, its function may be defined as the sense of force or resistance, exerted by, or belonging to, external objects.

The organ is always large in acrobats, rope-dancers, and good skaters, as well as in those who have a natural aptitude for constructing and managing machinery in motion. It is essential to the billiard-player to enable him to adapt the force with which he propels the ball, to the effect which he aims to obtain; to the sculptor, that he may correctly estimate the power of his blows upon the marble; to all artisans, indeed, whose success depends upon bringing power to bear with precision and delicacy.

As an instance of the diseased activity of this organ, Mr. Simpson refers to the case of John Hunter, the celebrated anatomist, as it is recorded by his biographer, Sir Everard Home. "From great anxiety of mind," says he, "Mr. Hunter had a severe illness. It attacked him on a journey, and his first sensation, it is well worthy of remark, was that of having drunk too much, although he had taken nothing but a little weak punch. On going to bed he felt as if suspended in the air, and soon after the room seemed to go round with him very rapidly. This ceased, but the strange sensation of being lifted up continued; and on being brought home in his carriage, his sensation was that of sinking or going down. The symptoms of whirling and suspension increased; and his own head, when he raised it from the pillow, seemed to move from him to some distance with great velocity. When he became able to stand without being giddy, he was unable to walk without support; 'for,' says Sir E. Home, 'his own feelings did not give him information respecting his center of gravity, so that he was unable to balance his body and prevent himself from falling.'"

COLOR.

The situation of this organ is next to that of Weight, and at the middle of the superciliary ridge. (See Fig. 17–C).

When large, it gives an arched and projecting appearance to both lower sides of the brow. It is a matter of common observation that there are great differences among men in the ability to perceive and appreciate colors. Where a deficiency of this sort exists, it is referred by some metaphysicians to a want of association, or early habits of inattention. Others conceive that it arises from some defect in the retina, or in the humors of the eye. But it is difficult to conceive how early habits of attention and inatten-



Fig. 34.—Color Large.

tion should cause the great diversity which exists in the power of judging colors; and so far from its being referable to the eye, it is remarkable that deficiency in the power of distinguishing colors exists with acute vision and a correct appreciation of the other qualities of material objects. Phrenologists have observed that the power to discriminate colors bears a direct relation to the development of a certain part of the brain, which is indicated

externally, as above described. The function of the ear is limited to the reception of sounds; but the organ of Tune takes cognizance of their discord or harmony. So the eye perceives external objects merely as such. By means of the organ of Form, we receive our notions of their shape; by the organ of Size, our idea of their magnitude; and by the organ of Color, our conceptions of their hue.

Many persons are so constituted as to be unable to perceive any difference in color between red or pink flow-

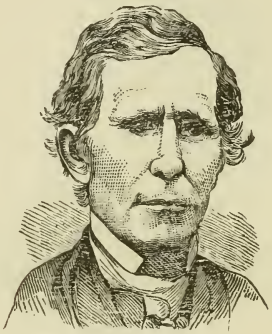


Fig. 35.—Color Small.

ers and fruit, and the green leaves which surround them. Others confound orange with green, red with brown, blue with pink, and indigo with purple. Mr. Combe mentions the case of Mr. Milne, a brass-founder of Edinburgh, who in early life was apprenticed to a draper, but was obliged to give up the occupation on account of the many mistakes he fell into in regard to colors. At one time he was selling a piece of corduroy, and the purchaser requesting strings to match, he proceeded to cut off what he thought

corresponded in color. The customer, however, stopped him, saying that the colors were not the same. Mr. Milne requested him to choose for himself, and he did so, selecting a different piece. So confident was Mr. Milne that the customer had made a wrong selection, and that his own was right, that he cut off pieces of the cloth, and the strings, which he and the customer had selected, and carried them home to his mother. She immediately told him that his ribbon was a bright scarlet, while the color of the other ribbon and of the cloth was grass-green. Fig. 31 shows the organ small.

The organ is generally larger in women than in men. Painters of celebrity, and those who excel in selecting and arranging colors, invariably have it large. The portraits of Durer, Rembrandt, Vandyck, Reynolds, and West show it large. Some artists excel in drawing, but are poor in color, and their efforts to excel in painting are hampered if not rendered futile by this organic defect. In those who were born blind Color is usually quite small. Mr. S. R. Gifford and Mr. E. Johnson, well-known landscape painters in America, have the organ well marked. So, also, has Millais, the English painter.

### ORDER.

This organ is situated in the middle frontal convolutions; on the cranium its place is found at the outer angle of the superciliary ridge next to Color (See Fig. 17–O). It was discovered by Spurzheim. In Dr. Gall the element of Order was extremely small. Dr. Fossati says on this point: "If it be true, as we believe it is, that there is an organ of Order, Gall was absolutely destitute of it." The eminent Italian anatomist states his opinion with perhaps too much emphasis, but a comparison of Dr.

Gall's bust with that of Wellington, Dr. Johnson, or of John Neal, the American author, shows a striking difference in the development of that part of the superciliary ridge. When the organ is large, the lower part of the forehead appears square and broad.

It is the function of Order to give a love of method and system in the arrangement of individual objects. Persons who have this organ well developed are disposed to be orderly in their business affairs. They aim to have a time and a place for everything; are punctual in keeping appointments, neat and cleanly in person, and systematic in



Fig. 36.— Order Large.

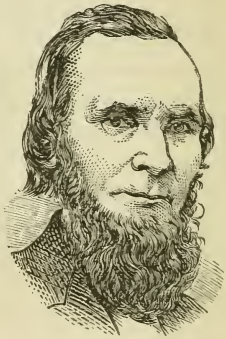


Fig. 37.—Order Small.

all things. Much, however, depends upon habit and association in giving direction to this faculty. A person may be systematic in some things to which his attention is specially called, while in regard to other matters in which he takes little interest, he may be considered disorderly.

In the head of Curran, this organ appears to be quite deficient; and he was noted for his careless, slovenly habits; while in the mask of the celebrated William Pitt, it is very largely indicated. As an orator, Pitt was remarkable

for the orderly arrangement and coherence of his words and sentences. In persons noteworthy for administrative ability the organ is found large. Dr. Gall speaks of an idiot in Paris who could not bear to see a chair or other object out of place; but would immediately replace it, without an intimation, as soon as it was disarranged. Thus the instinctive action of the faculty was illustrated.

### CALCULATION OR NUMBER.

The organ of this faculty is located in the frontal convolutions, at their lower margin, and adjoining Order.




Fig. 38.—CALCULATION LARGE.

(See Fig. 17–C). When large, the external angle of the superciliary ridge appears expanded, and the region outward from the eye is relatively wide. This organ gives facility in the use of figures for computation. It is limited, however, in itself, to mere calculation; other faculties are essential to success in the higher processes of mathematics. George Bidder and Zerah Colburn astonished the world by their calculating talent, when mere boys. Mr. Combe

predicted of the former, however, that he would never excel as an engineer; and in confirmation of this prediction his teacher said of him, after having given him instructions in mathematics for two years, that he did not show as much capability in the higher branches as many others of the class.

In Mr. Combe the organ was small, and he said of himself: "Arithmetic has always been a profound mystery to me, and to master the multiplication table, an insurmount-



Fig. 39.—Calculation Small.

able task. I could not now tell you how many eight times nine are without going to work circuitously, and reckoning by means of the tens. Yet, for seven years I studied arithmetic. This deficiency has been the occasion of much trouble to me. I could understand everything relating to accounts, but had always to employ clerks to perform calculations. This faculty in me is, in fact, idiotic, and the organ is very small. Were my other powers in

like condition, I should be totally unfit for the ordinary business of life."

Arctic travelers speak of the deficiency of the Esquimaux in respect to numerical calculation; these people generally resolve every number above ten into one comprehensive word, and in corroboration of the weakness of this organ in the Esquimaux brain, it is said that the external angle of the eye instead of being horizontal with the internal, as with us, is sensibly raised up toward the temples. In Fig. 39 the organ appears to be small.

A patient in the Lunatic Asylum of Newcastle, England, employed himself continually in covering paper with arithmetical calculations. His paper being taken away, he used a slate; this was removed, and he then scratched the figures on the wall with his nails; his hands were then tied behind his back, and he employed his tongue to make figures on the wall with saliva. This conduct indicated disease or excitement in the brain-matter composing the organ of Calculation. In Napoleon the organ was large, as is seen in the cast by Antommarchi. In Dr. Gall it was small, and he affirmed that every kind of numerical computation fatigued him, while "he knew nothing of geometry, nor the problems of mathematics."

### LOCALITY.

The organ of this faculty is situated in a division of the First Frontal convolution, over Weight, and upward and outward from Individuality. (See Fig. 17–L.)

Everything which exists upon the earth must occupy a place somewhere on its surface, and it is the function of this organ to set us in harmony with this order of nature, by enabling us to form conceptions of, and to remember Locality. Those who have this organ well developed pos-

sess an instinctive sense of the relations of place and direction. They are enabled to make their way readily to any desired point, and easily remember the scenery and topographical features of places which they have visited. When very large, it gives a passion for traveling and seeing new countries. In M. Meyer, author of "Dia na-Sore," it was greatly developed, and he found no pleasure except in a wandering life. His memory of the places which he had seen was astonishing.

In the busts and portraits of all eminent navigators and



Fig. 40.—Locality Large.

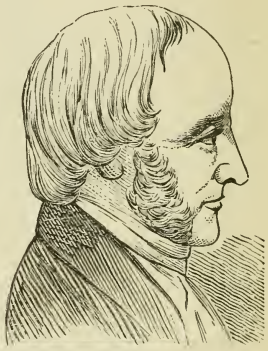


Fig. 41.—Locality Small.

travelers, as well as in great astronomers and geographers, there is invariably a prominence at the seat of this organ. Witness the portraits of Captains Parry, Ross, Dr. Kane, Sir John Franklin, Galileo, Laplace, Herschell, Dr. Livingstone, the explorer of Central Africa, etc. (See Fig. 40.) It is by the aid of this faculty, in co-operation with other perceptive powers, that the Indian is enabled to traverse the trackless forest, and make his way with great ease from place to place.

Many of the lower animals, particularly horses and dogs, possess this organ in a remarkable degree. It is related that one of a litter of pigs recently born was taken from its mother, placed in a barrel, from which it could see nothing but the sky, and carried on a wagon some distance by a circuitous route and across a stream. A few days after, the little pig made its escape from the pen in which it had been inclosed, and was found to have taken a direct line toward its home and mother. It swam the stream in its course, and, being carried down a little by the current while crossing, the animal rectified the deflection by striking out at a new angle for its destination, when it had reached the other side.

Birds, especially the predatory class, have the instinct of Locality in a marked degree. Pigeons are remarkable for their local memory, and some varieties are highly esteemed for their swiftness and fidelity as messengers.

At one time Dr. John Hunter was afflicted with a disease which disturbed the function of this organ, and Sir Everard Home says of him: "He had no conception of any place existing beyond the room he was in, yet was perfectly conscious of the loss of memory."

***The Adaptation of Nature.***—In the enumeration of the physico-perceptive faculties which we have just completed, we observe an order and completeness, with respect to their location and function, which are characteristic of the works of the Creator in every department of nature. These faculties are all arranged about the eyes, the chief instruments through which impressions of the external world are conveyed to the mind, and each has to do with a quality or relation of external things which is entirely distinct in essence from every other relation, but necessary to a complete conception of any material object. If we

take a common object, a tree, for instance, and exercise each one of our observing faculties upon it successively, we may then gain an idea of the complete impressions which they give.

In the beginning we must perceive an object as an existence before we can note its qualities, and here the organ of Individuality is exercised, and enables us to separate the tree from all other objects which exist, and to consider it in particularity. But trees differ very much in their forms. The pine, the elm, and the willow have each a peculiar shape, and the organ of Form enables us to apprehend this property. Again, trees are of all sizes, from the seedling of an inch high to the giant of the forest, full grown, towering up a hundred feet or more; and we are enabled to take cognizance of this point of difference by the organ of Size. The weight or density of the wood which composes a tree is a quality which it is often useful to note, and through the organ of Weight we are enabled to perceive the differences which exist in this respect between various kinds of woods. Color, also, is a quality which belongs to a tree; its wood may be light or dark, and its leaves show different shades of green or brown, according to the season, and here the organ of Color comes in as a convenient and agreeable intellectual accessory. Again, nature observes a method in the disposition of the limbs and leaves, and every leaf shows a perfectly systematic arrangement. To give us a proper idea of this relation among the parts of the tree, we are endowed with an organ of Order. Moreover, it is useful for man to know the number of its parts to be able to compute its dimensions, the years of its growth, etc.; and here the organ of Number comes to help toward obtaining such knowledge.

Finally, the tree can not exist without occupying a piece

of ground, and having a special situation, for the consideration of which the intellect is provided with the organ of Locality.

Some men possess these faculties in a large measure, and therefore keen powers of observation, which enable them to give accurate descriptions of objects which come in their way. Others are feebly developed in them, and are superficial in their observations, and vague and indefinite in their descriptions of physical objects.

## THE SEMI-PERCEPTIVE OR LITERARY ORGANS.

### EVENTUALITY.

The organ of this faculty lies in the middle of the forehead directly above Individuality. (Fig 17–E.) The natural subdivisions of the First Frontal convolution in this region of the brain appear to afford a special seat or center for it. It is the function of Eventuality to take cognizance of action and change, and thus supplies memory of events, circumstances, whatever has passed through our own experience or that of others. Dr. Gall was of the opinion that the parts embracing this organ, and what we now call Individuality, were the seat of one organ only, and he named that "Educability," because he found that persons having this part of the brain large were distinguished for prompt conceptions, facility of apprehension, retentiveness of memory, and a strong desire for knowledge and instruction. Dr. Spurzheim subsequently made the analyses which determined the separate function of Eventuality with enough of clearness to warrant its being set apart as a special organ.

In illustration of the distinctive functions of the two organs of Individuality and Eventuality, Mr. Combe relates

the following anecdote. There had been a great review, and he dined with a number of gentlemen who had attended. He asked one of them what regiments were on the field. He replied that he did not know. He asked him then if he remembered the numbers on their knapsacks. No; he did not notice them. He then inquired if he had observed the facings of the regimentals. No; he did not recollect seeing them. He asked him then what he did see. "Why," he replied, "I saw the review." "And what do you call the review?" asked Mr. Combe.



Fig. 42.—EVENTUALITY LARGE.

"Why," said he, "I do not call the numbers the review, nor the facings the review, but the evolutions." He then described the various movements, the marching and the counter-marching of the soldiers, with great precision. Another gentleman sitting by said: "I know that the soldiers marched about and formed squares, yet I certainly could not have described the various successive movements as that gentleman has, but I remember what regiments were on the field, their numbers and facings." Mr. Combe was struck with the difference between these two gentlemen and remarked, that in the first, Eventuality was

much the more prominent organ, and in the second, Individuality greatly predominated.

Some writers consider Eventuality not only a central depository of knowledge or material for the use of the intellectual faculties, but also receptive of the results of the operation of the sentiments and emotions. Love of knowledge is certainly its innate characteristic, and those who have it large are given to inquiry and investigation. That disposition which is commonly known as curiosity is refer-



Fig. 43.—Eventuality Small.

able to it rather than to Individuality. Dr. J. T. Browne says, in concluding an argument on its nature: "Seeing, then, that this organ of Eventuality is the only one that can become sensible of the existence and of the special functions of all the other organs, whether they relate to external things or to inward thoughts and feelings, it follows, in the course of reason, that it must embrace within its sphere of action the notion of the entity, Self. And for the same reason it seems right to assume that it is also the true seat of Con-

sciousness, that mysterious abode so long sought for in vain by the most able students of metaphysical science."

Authors who excel in descriptions of things owe this quality of their composition to a good endowment of Individuality; while those who excel in the description of action, possess Eventuality in a large degree. Both of these organs are essential to vividness of narration, when both objects and actions enter into the description. These organs were large in De Foe, Goldsmith, and Swift, and are prominent in Victor Hugo and Wilkie Collins, and the qualities which this organ gives to composition appear strikingly in their productions. In the portraits of the naturalists Cuvier, Buffon, Lyell, and Buckland this organ is prominent. Eminent jurists and statesmen, like Webster, Calhoun, Choate, and Evarts, have it large.

### TIME.

The location of the organ of this faculty is in the middle frontal convolution, about midway between the *vertical frontal fissure*, as marked by Ecker, and the anterior margin of the brain. Its place, as indicated on the cranium, is in the center of the lateral region of the frontal bone, immediately over the orbit. In the living subject it is above the middle of the eyebrow, and outward from Locality. (See Fig. 17–33).

This organ furnishes the power of measuring time. It is a matter of common observation that there is a great difference among men in regard to memory of the time when events have occurred, as well as in regard to their ability to measure intervals in music, and to keep step when marching or dancing. Some persons may possess this faculty in a remarkable degree, and be idiotic or feeble in all other respects. A case is related of the son of a farmer

who hardly knew enough to take the cows to pasture, yet was able to tell the hour of the day with great precision, even immediately after being awakened from a sound sleep. The deaf and dumb usually show a strong appreciation of rhythmic movements by keeping the step in dancing. "The sense of touch," says Dr. Simpson, "may



Fig. 44.—Time Large.—Lowell.

be the channel through which the organ of Time is excited, as well as the sense of hearing and sight. No one will dispute that a soldier could perform the manual exercise to a succession of taps on the shoulder; and to time in the same way given might a person dance." The deaf and dumb dance by taking the time from the movements of the musician's hand, or instantaneously from their com-

panion dancers, and apparently derive great pleasure from the exercise.

The metaphysicians were greatly puzzled to account for the power which is possessed by man and some of the lower animals for appreciating intervals of time, until it was shown that this power is an original mental faculty, having a certain part of the brain as its functional center.

A case of disease in this organ, accompanied with special derangement of the power to consider the duration of time, is recorded by Dr. Hoppe, of Copenhagen. A lady of much intelligence, who required his medical advice, stated, that though perfectly conscious of everything around her, she possessed no conception of time. Sometimes a very long period and at other times a very short period seemed to her to have elapsed since she had fallen into her present condition. Without being questioned, she complained of pain and a strong sense of burning in a line across the forehead. And when requested to point out the seat of the pain, laid her finger exactly on one organ of Time, and then drew it across to the other organ. She stated that she felt pain in no other place but in this line.

Many remarkable instances are related of the manifestation of this faculty by some of the lower animals; but, as the reader has doubtless met with frequent illustrations in his perusal of current literature, we deem it unnecessary to occupy space with any particular relation.

The development of Time in young children is subsequent to that of Eventuality, which is apparent from the fact that one two years old will exhibit strong curiosity and a good memory of things, but have scarcely any notion of time in its extent or application. What has passed is referred to "yesterday," and "to-morrow" expresses for

them the future generally. As the child grows older he is found setting closer and closer bounds to intervals, and approaching to exactitude in periodic designation.

The organ of Time plays a very important part in our mental life, and Dr. Browne fitly says: "A keen, habitual sense of the value of time is naturally a very influential, nay, indispensable ingredient in the composition of an industrious character;" and he argues, that "if the harmonious intervals of musical sounds are dependent on a correct perception of time, it is not irrational to suppose that sustained harmony in the arrangement of our thoughts and words will be proportioned to the relative size of the organ of Time, especially when it is acting in unison with the sense of Order." In Dr. Gall, Samuel Johnson, Daniel O'Connell, Benjamin Franklin, Henry Clay, and other men distinguished for indefatigable, intellectual activity and practical efficiency, this organ was a salient feature. Fig. 35 shows this organ but weakly developed.

### TUNE.

The organ of Tune is situated in the lower lateral or angular part of the forehead, adjoining Time, and immediately above Order. (Fig. 17–34). When large, it gives a rounded fullness or projection to that part of the temporal region, although its conspicuity may be much reduced by association with a large organ of Order, and the relative disposition of the frontal convolutions. According to Dr. Spurzheim, this organ in Glück had a pyramidal contour; in Mozart, Viotti, Dussels, and others, the external and lateral parts of the head were enlarged and rounded.

This is the musical faculty. It gives love and appreciation of melody, and is essential to skill as a musical per-

former. Time is, however, a most important ingredient in a genius for music, contributing to the sense of harmony by affording a just perception of intervals.

Dr. Gall observes that a large endowment of this organ should not be expected in every ordinary performer. By persistent training a person with a moderate development of the organ may acquire considerable skill with musical instruments. But when the soul feels the inspiration of harmonious sounds, and the countenance expresses the




Fig. 45.—Tune Large.

rapture which thrills through the frame of the real musician, a large organ will never be wanting.

As an instance of remarkable deficiency in the organ and faculty, the case of Ann Ormorod is given. She was admitted at twelve years of age to the Blind Asylum of Liverpool, and during two years unsparing efforts were made to develop any musical talent which she might possess, but without effect, as she experienced no greater pleasure from

the finest music than from the rudest noise. A comparison of the mask which was taken of her head with that of Madame Malibran, shows a remarkable difference in development at the region of Tune; the one being flat and sunken, the other full and protuberant.

Dr. Andrew Combe gives an interesting case of disease of this organ from his own practice. The patient complained of acute pain at the exact situation of the organs of Tune, which were largely developed. She dreamed a great deal of hearing the finest music, and her dreams were so vivid that she said she believed she would be able to reproduce a piece which had particularly pleased her. The pain and excitement in the organ of Tune continued for several days, with growing intensity, accompanied by an irresistible craving for music, which she was powerless to repress. Being refused permission to get up and play and sing, as she strongly desired to do, she requested that a friend might be sent for to play and sing for her. In the meantime the craving became so intolerable, that she seized a guitar, and lying upon the sofa, gave way to the torrent of her feeling with a clearness and strength of voice and a facility of execution which were extraordinary. Dr. Combe, perceiving the physical cause of these phenomena, made use of remedies to allay the inflammation and excitement of the cerebral organ, and with happy results.



Fig. 46.—TUNE SMALL.

Napoleon I., as stated by Bourrienne, had very little capacity for appreciating music, and his mask confirms the statement. Sir Walter Scott was weak in this faculty also,

while Moore possessed a strong development. The difference among the poets in lyrical qualities may be referred to their differences in the organ of Tune.

In Weber, Handel, Beethoven, Rossini, Jenny Lind, and other great musicians, the organ is strikingly shown. In the ordinary practice, however, of Phrenology, it is not an easy matter for the examiner to determine the size and strength of Tune, until he has had a large amount of experience. The student should carefully note the differences of conformation in the region of the organ, as shown on the heads of eminent musicians, when contrasted with those who are lacking in the musical faculty.

Singing birds are examples of the existence of this faculty in the lower animals, and in the male singing bird a greater fullness of the skull over the eye orbit exists than is observable in the head of the non-singing female.

### LANGUAGE.

The organ of this faculty is situated in the lower surface of the anterior lobe at the posterior part of the supra-orbitar plate.

"Let a line be imagined to extend for about an inch and a half from the root of the nose backward toward the center of the brain, and it will be found to reach a projection of bone rising from the base of the skull, called 'sella turcica,' from its likeness to a Turkish saddle. On each side of this body, and just where the optic nerves are about to enter the long orbit of the eye, there lies a convolution of the brain in man only (in the higher apes his convolution has been recently reported to be slightly or germinally indicated—Authors), which runs from that point transversely in front of the middle lobe, till it reaches the con-

volutions which constitute the organs of Order and Number, and in its way it blends itself with the posterior portion of the convolutions of which the organs of the other perceptive faculties are composed."—BROWNE.

The phenomena of aphasia, an affection which deranges the faculty of speech, and investigations into the condition of the brain after the decease of the aphasic person, have convinced later anatomists of the existence of an organ in the brain which presides over speech. Dr. Austin Flint says: "It seems certain that in the great majority of persons the organ, or part presiding over the faculty of articulate language, is situated at or near the third frontal convolution and the Island of Reil in the left anterior lobe of the cerebrum, and mainly in the parts nourished by the middle cerebral artery. In some few instances, the organ seems to be located in the corresponding part on the right side."

Its size is measured by the varying prominence or fullness of the eye, which results from the effect produced by the convolution which constitutes this organ upon the growth and form of the thin orbitar plate beneath it. This faculty takes cognizance of the artificial signs by which we represent ideas. Ideas are formed by the other faculties, and words are the signs by which they are represented. The word ox stands for a single object, and wherever the English language is spoken, conveys the same idea to the mind. In the phrase "red ox," two words or signs are used to convey two distinct ideas, and two mental faculties—Color and Individuality are employed to give us these ideas. In the sentence, "The big, heavy, red ox runs," five words are employed, five ideas are conveyed to the mind, and five mental faculties are concerned in comprehending these ideas. Language

is the faculty which has to do with the manifest expression of these words or signs. It gives memory of words and facility in the use of terms and phrases, and is thus the source of fluency of speech, and the ability to commit readily to memory. Where this organ is deficient the person finds great difficulty in giving expression to his thoughts. He may have ideas in abundance, but from want of the faculty which enables him to recall the words or signs by which these ideas may be represented, he will fail in the power of giving his thoughts expression.



Fig 47.—Language Large.

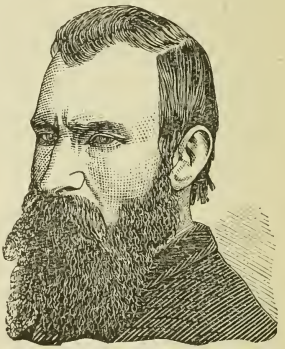


Fig. 48.—Language Small.

Instances of disease of this organ in which the power of using words has been partially or wholly suspended (aphasia), are frequent in the records of pathology. We will instance but one or two:

Dr. Hammond refers to a woman of exceedingly intelligent appearance who came under his notice, thus: "She comprehends every word that is said to her, and attends to all her household duties. Yet she is unable to utter any words but 'No,' 'Yes,' and 'Dado.'" This case is re-

ported as one of many illustrations of "the loss of the faculty of speech without any marked impairment of the intellectual faculties."

Mr. Hood, of Kilmarnock, reports the interesting case of a man sixty-five years of age, possessing the ordinary knowledge of written and spoken language, who suddenly began to speak incoherently, and became quite unintelligible. "It was discovered that he had forgotten the name of every object in nature. His recollection of things seemed to be unimpaired, but the names by which men and things are known were entirely obliterated from his mind, or rather he had lost the faculty by which they are called up at the control of the will." He was quite well in every respect, with the exception of a slight uneasiness in the region of the eyes and eyebrows. If a familiar name were mentioned to him, he was able to repeat it once or twice distinctly, but generally before he could do so a third time, it was gone from him completely. He could understand passages which were read to him, but could not read himself. Between two and three years afterward he died of apoplexy. A *post-mortem* examination was made, and it was found that there was extensive disease in the left hemisphere of the brain over the orbitar plate.

The history of this organ is the most interesting of the faculties, as with its discovery by Dr. Gall began the series of investigations which resulted in the formulation of the Phrenological system. In the sketches of Dr. Gall's life, which are to be found in all the large libraries, allusion is made to the incident which drew his attention to the subject that has rendered him eminent among the world's benefactors.

Dr. Gall admits two organs or two divisions of the organ of Language, one termed the sense or memory of words,

the other the talent for philology. Dr. Spurzheim admits but one organ embracing both modes of action. Mr. Combe and the later phrenologists have generally accepted Spurzheim's view.

## THE REFLECTIVE OR REASONING FACULTIES.

### COMPARISON.

The organ of Comparison is situated in the frontal convolution, at the inner margin of the hemispheres, on the middle line of the forehead, and directly above Eventuality. (See Fig. 17–37). It has for its function the perception of resemblances and differences. The other faculties compare objects of the same class as the ideas which they peculiarly and independently form; thus the organ of Color takes cognizance of the difference and resemblance of hues; Tune of musical sounds; and Form of shapes. But this organ compares things which in their individual attributes are entirely unlike: as a light in a dark night, to a good deed in a wicked world. It frequently discovers unexpected resemblances among things, and is the source of the ability which some writers and speakers possess of illustrating their subjects by novel similes, metaphors, and analogies. A writer who does not accept an organ for Human Nature, says of Comparison: "Its central position between the organ of the most benign of the moral and religious sentiments, and the most important of the perceptive organs is well adapted to the discharge of the functions it has to perform, since these appertain to each and all of the faculties. For it recognizes resemblances not only in the attributes of incongruous physical objects, but also between things physical

and things imbued with the characteristics of spirituality." By the power which it gives of discovering differences and resemblances, it is a very important element in the critical and analytical mind. Chemistry, Botany, and all the sciences where nice distinctions and discriminations are necessary, are a natural field for its exercise. It gives to business men quick, practical judgment, by enabling them to compare any subject which comes up for their consideration with previous experiences. When this organ



Fig. 49.—Comparison Large.



Fig. 50.—Comparison Small.

is small the judgment is slow; the person failing to comprehend readily the analogous conditions, is unfit for a place where prompt decision is required.

This organ was very large in the poet Moore, and his writings abound in comparisons. In his Life of Sheridan there are two thousand five hundred similes, besides metaphors and allegorical expressions.

Comparison is of great importance in a talent for public speaking. Many speakers, after a plain and simple state-

ment of a given case has been made, find it difficult to dwell longer on the subject, even though Language may be well developed, from want of interesting matter relating to it. Others again are able to enlarge upon the subject of which they are treating by the introduction of many topics which bear upon it, and so to present it in a clear and forcible light. Orators like Mr. Beecher, and reasoners like the late President Lincoln, have large Comparison, which contributes their readiness at illustrating their argument with anecdote and hypothesis drawn from every-day life.

Dr. Gall rightly observes that close reasoning and rigid induction are always disagreeable to a popular audience, because their faculties are not sufficiently cultivated or exercised to follow abstract conceptions. The great charm of popular speakers, therefore, consists in perspicuity of statement and copiousness of illustration. So the most popular books of the day are those which abound with common incidents, analogies, and comparisons.

### CAUSALITY.

All who have observed the contour of the forehead of men distinguished for profound reflection and theoretical reasoning talent, know that it is largely developed in the upper part. The portraits representing Socrates, Cicero, Bacon, Melancthon, and Kant, are thus marked, and Dr. Gall was led by his study of such characters to the determination of the organ which he ascribed to "metaphysical depth of thought;" "aptitude for drawing conclusions," and which Dr. Spurzheim named Causality.

The organ is situated on each side of Comparison, and over Locality. When large, it gives prominence to the upper portion of the forehead, at the region of the *frontal*

*eminences* of the cranium, and if the Perceptives are small, that part has an overhanging appearance. If, however, the Perceptives are developed in proportion to the Reflective faculties, the forehead recedes a little from the perpendicular. It is the office of this faculty to take cognizance of the relations among phenomena which constitute cause and effect. The Perceptive faculties recognize the existence and qualities of objects. Eventuality notes the changes which they present, and Causality seeks to trace these phenomena back to their origin or to the causes

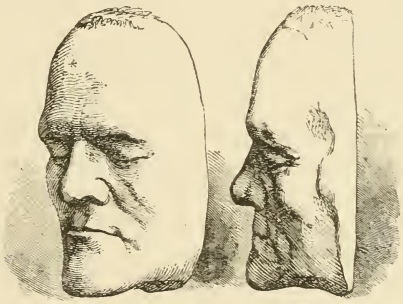


Fig. 51.—CAUSALITY LARGE.

which produced them. Thus the Perceptives take cognizance of the existence of day and night, and the various phenomena presented by the changing seasons. Causality goes back of the phenomena, and inquires into their source. The moon is observed to increase in size from night to night, then to wane, disappear for a season, and again appearing to pass through the same phases. Causality stimulates inquiry into the nature and law of these changes, and so contributes to the profoundest human wisdom. Sir Isaac Newton was helped toward the dis-

covery of the law of gravitation by the fall of an apple. Millions before Newton had seen apples fall without giving the phenomenon even a passing thought. But Newton's large Causality led him to inquire why apples when released from the stem fall in a direct line to the ground instead of flying upward or in any other direction, and the result of his reflection on this simple every-day incident was the discovery of the law by which day and night, spring, summer, autumn, and winter follow one another in unalterable succession, and the countless worlds in the starry heavens revolve in harmony.

Dr. Spurzheim observes that "the faculty of Individuality makes us acquainted with objects; that of Eventuality with events; Comparison points out their identity, analogy, or difference, and finds out their harmony; finally, Causality desires to know the causes of all occurrences. Consequently, these faculties together, pointing out general principles and laws, and drawing conclusions, inductions, or corollaries, constitute the truly philosophic understanding." In another place he says: "It is remarkable that the ancient artists should always have given to their busts of philosophers a large forehead, and represented Jupiter Capitolinus with a forehead in the middle part more prominent than is ever seen in nature (except in very rare instances). They seem to have observed that development of the forehead has a relation to great understanding."

If this faculty be very deficient the intellect will be superficial, and incapable of forming a comprehensive judgment or of taking wide-reaching views. It may be capable of dealing successfully with the common affairs of life, performing work laid out, or devised by deeper intellects, but if intrusted with duties involving a clear perception of

causation and result, it will fail. Fig. 50 is a good representation of defective or small Causality.

In some of the lower animals this faculty appears to exist in a good degree, as they show a capacity for adapting means to obtain desired ends, which can hardly be referred to mere unreasoning instinct. Beavers, for instance, adapt the structure of their dam to the pressure of the water. They select those trees which, when cut, will fall into the water in such a way that the force of the stream will carry them to the spot where they are to be used; and they frequently modify their structures to suit new circumstances. Bees have been known, when a portion of their comb has been broken, to build a column for its support. Dr. Darwin says that a wasp, having taken a fly nearly as large as itself, separated the head and the tail from the body part to which the wings were attached, and attempted to fly away with the latter, but a breeze caught the wings of the fly and whirled the wasp round in the air. He then settled upon the ground with his prey, and cut off both wings. After this he flew easily away with the fly. In these cases as well as in many others which might be mentioned, there seems to be an appreciation of cause and effect, or of the relation of means to end, which implies some degree of reasoning intelligence. Yet this intelligence is restricted to a limited sphere and appears often to be lacking when the necessities of the animal should most strongly impel its activity. A horse has been known to starve to death while tied by a rope to a tree, from which it had eaten the bark as far as it could reach. Had it possessed but a glimmer of reason, one would think it would have divided the rope with its teeth, and set itself at liberty. A dog or wolf would have soon bitten the rope asunder and escaped, for the

reason perhaps that they are "gnawing" animals while the horse is not. Yet to the horse we attribute a high degree of sagacity, and know him to be susceptible of extensive training. One can be taught to tie and untie a rope, to loosen his halter, etc., but without such specific training he would not be likely to do such acts, even if his life depended upon their performance.

In man alone this faculty is capable of universal application, and its possession gives him an immense superiority over the brutes. Causality prompts man to ask the question Why? and its office of tracing effects to causes appears to include a measure of prevision, or of foreseeing effects which certain actions are destined to produce. Many persons largely endowed with the reasoning faculties, and hence capable of looking deeply beneath the surface of things and deducing remote causes and assigning what appear to most people novel relations to events, obtain the reputation of being "original," whereas true originality belongs to the function of another organ, and can not strictly be imputed to reasoning merely. Fancy and invention may contribute toward new methods of reasoning, but originality proceeds from a sentiment, Spirituality.

# CHAPTER VII.

## THE SEMI-INTELLECTUAL FACULTIES.

### CONSTRUCTIVENESS.

THE place of this organ is in front of Acquisitiveness and contiguous to that part of the frontal bone which is immediately above the spheno-temporal suture. (See Fig. 17–20.) When large, it gives breadth to the head above the zygomatic arch. "If the base of the brain is narrow," says Mr. Combe, "this organ holds a situation a little higher than usual, and there will then frequently be found a slight depression at the external angle of the eye between the zygomatic process and the organ in question, especially when the muscles are thin. In such cases it has sometimes appeared as high up as Time generally occurs. This slight variation from uniformity of situation, occurs in the distribution of all parts of the body; but the anatomist is not on this account embarrassed in his operations; for the aberration never exceeds certain limits, and he acquires by experience the tact of recognizing the part by its general appearance." It may be added here that the growth of organs in their groupings is toward those which exercise a dominating influence, so that when Constructiveness, for instance, appears high up in the brain and forward, it is more closely associated with the reasoning intellect than with the perceptive.

It is the function of this organ to manifest a disposition to fashion, to configurate, and to put together materials in forms of utility or beauty. It gives manual dexterity in the use of tools, and is essential to all arts which involve mechanical construction and configuration. It enables man to build houses for his shelter; to fabricate clothing for his protection and comfort; to construct ships, ma-



Fig. 52.—Constructiveness Large.

chinery, and the implements essential to his advancement as a rational and progressive being.

Some have supposed that the disposition to construct is dependent upon the general intellect, or habit, or a matter of acquisition, but this opinion is obviously not correct, since many persons eminent for intelligence have never shown any capability in mechanics, while others have manifested constructive ability in a remarkable degree,

who were lacking greatly in intellect. This faculty also is frequently manifested by children at a very early age, while as yet the general intellect is undeveloped. Moreover, we find it exhibited in the lower animals in a way that evidently bears no relation to the degree of their intelligence. The elephant, the horse, and the dog rarely make the slightest attempt at construction, while the bird, the bee, and the beaver are remarkable for their manifestation of mechanical skill.



Fig. 53.—CONSTRUCTIVENESS SMALL.

In illustration of the activity of this faculty at an age which precludes the idea of its being dependent upon the general intellect, Dr. Gall relates that Vulcanson, when a mere child, from simply seeing a clock through a window, constructed one like it with no other implement than a common knife. A gentleman with whom Dr. Gall was intimately acquainted, made, at a very early age, a machine for making pot-barley, and actually set it in operation by a small jet from the main stream of the water of Leith. Le Brun drew designs with chalk at three years of age, and

at twelve he made a portrait of his grandfather. Canova, in childhood, was led to model figures without knowing the methods or materials which are used in such sculpture. Sir Christopher Wren, at thirteen, constructed an ingenious machine for representing the course of the planets. Michael Angelo, at sixteen, executed works which obtained high consideration.

Mr. Combe speaks of an eminent Scotch barrister, in whom Constructiveness was largely developed, who, in the very act of composing a written pleading on the most abstruse question of law, would have vivid conceptions of particular pieces of mechanism, or of new applications of some mechanical principle, dart into his mind, and wholly interrupt the current of his thoughts, till he was obliged to embody them in a diagram or description, that he might "lay the Devil," as he termed it, and proceed with the subject in hand. Louis XVI. of France had a private workshop in which he employed much of the time which should have been given to affairs of State, in devising locks and setting type.

Dr. Gall mentions that two of his friends, the one an excellent teacher, and the other a "grand minister," were passionately fond of gardening, but he never could teach them to ingraft a tree. And Montaigne says of himself, "I can not handsomely fold up a letter, nor could ever make a pen, nor carve at table worth a pin, nor saddle a horse." We know persons of eminence in the law and some departments of science who have no taste or knack for using tools.

Dr. Rush says that there is no insane hospital in which examples may not be found of individuals who never showed the least trace of mechanical talent previously to their loss of understanding; but who have subsequently

constructed the most curious machines. These unwonted manifestations of ingenuity are due to the excitement produced in the organ of Constructiveness through mental derangement.

A large endowment of this faculty is essential to the engineer and surgeon, to the dress-maker and milliner; and all women who take pleasure in cutting and fitting their own dresses, and devising changes in the arrangement of house or garden, have the lower and forward part of the side-head well filled out.

### IDEALITY.

The situation of this organ is in the second frontal convolution of Ecker near the vertical frontal fissure. On the cranium its place is found in the temporal region of the frontal bone, directly above Constructiveness. (Fig. 17–21). Dr. Gall called this the organ of Poetry, because he invariably found that the region which it occupies was large in the heads of living poets whom he had the opportunity to examine, as well as in the pictures and busts of all who had been eminent for the gift of poesy. Dr. Spurzheim, however, considered it impossible "that poetry should be confined to a single organ," and after a careful analysis, declared its function to consist in giving to the mind inspiration, rapture, and exaltation of sentiment. Hence he named it Ideality; the capacity for forming ideals of beauty and perfection. In general terms the faculty may be designated as the sense of the beautiful, the esthetic sentiment since it imparts when active, elevation, refinement, taste to thought, and a love of the beautiful in nature and art; and is essential to the musician, the painter, and the sculptor, as well as to the poet—giving to their productions

an exquisiteness and finish which the other faculties, however perfect, could never produce.

"What are the flowers which deck the fields," Mr. Combe says very appropriately, "combining perfect elegance of form with the most exquisite loveliness, delicacy, and harmony of tint, but objects addressed purely to Ideality and the subordinate faculties of Coloring and Form? They enjoy not their beauty themselves, and afford neither food, raiment, nor protection to the corporeal frame of man; and on this account, some persons have been led to



Fig. 54.—Ideality Large.

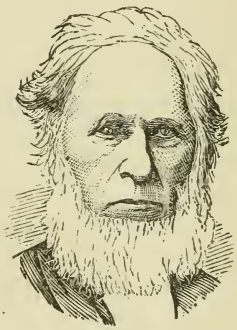


Fig. 55.—Ideality Small.

view them as merely nature's vanities and shows, possessed of neither dignity nor utility. But the individual in whom Ideality is large, will in rapture say that these objects, and the lofty mountain, the deep glen, the roaring cataract, and all the varied loveliness of hill and dale, fountain and fresh shade, afford to him the banquet of the mind; that they pour into his soul a stream of pleasure so intense and yet so sure and elevated, that in comparison with it, all the gratifications of sense and animal propensity sink into insipidity and insignificance. In short, to the Phrenologist,

the existence of this faculty in the mind, and of external objects fitted to gratify it, are among the numberless instances of the boundless beneficence of the Creator toward man; for it is a faculty purely of enjoyment—one whose use is to refine and exalt, and extend the range of our other powers, to confer on us higher susceptibilities of improvement, and a keener relish for all that is great and glorious in the universe."

In conformity with this view, the organ is deficient in barbarous and rude tribes of men and large in nations which have made the most advancement in civilization. It is small in atrocious criminals; and it has been observed that persons born in the lowest walks of life, whose talents and industry have raised them to wealth, are susceptible of refinement in manner, habit, and sentiment, in proportion to the development of this organ and that of Approbativeness; whereas if it be small, their primitive condition is likely to cling to them through life.

Dr. Gall observed this organ large in an insane patient, and indicated the fact to the physician of the hospital. The physician replied that the patient during his state of alienation continually employed himself in composing verses, some of which showed merit; yet he belonged to the lowest class and had received no education. Dr. Willis also mentions a patient, who, during his paroxysms of insanity, was conscious of the most delightful and elevated emotions, and wrote poetry and prose with great facility. This state of feeling always disappeared when the fit passed off.

Where Ideality is largely developed and the organs of the intellect are ill-balanced or insufficient, the person shows a want of judgment in appreciating the affairs of ordinary life. He appears to live in a sphere of his own, and invites

censure or criticism because of his eccentricities of thought and act and his neglect of practical duty. Persons so constituted are often unhappy and dissatisfied because their actual experiences fall much short of their ideal notions of excellence and completeness.

### IMITATION.

The situation of this organ is marked upon the side of the top-head just above Ideality and a little forward. (See



Fig. 56.—IMITATION LARGE.

Fig. 17–22). In the brain its place appears to be in the second frontal convolution adjoining the vertical frontal fissure and lying against the sulcus which divides the second from the first frontal convolution. If it be large and Benevolence small, the head approaches flatness across the anterior coronal region; while large Benevolence with small Imitation imparts to the head in this region a slanting appearance, like the roof of a house.

Imitation gives the disposition to copy persons or things or to mimic, as in acting. It is essential in all occupations which have to do with working after models, as well as to those intellectual employments concerned in the representation of the mental traits and manners of others.

Dr. Gall was led to the discovery of this organ by observing the peculiar configuration of the head of a friend who was remarkable for imitative talent. Supposing that

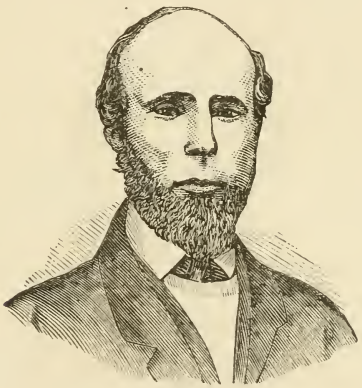


Fig. 57.—Imitation Small.

there might be a relation between this form of head and the mental characteristic for which the gentleman was distinguished, Dr. Gall at once repaired to a deaf and dumb asylum where a pupil had attracted much attention by his astonishing powers of mimicry. At a little play which was performed in the institution, this boy had imitated so perfectly the gestures, gait, and looks of the director, inspector, physician, and surgeon of the establishment, that they were readily distinguished by the lookers-on. The education

of the boy had been totally neglected, and nothing of the kind was expected from him. Dr. Gall found the same region of the head to be similarly developed in this boy as in his friend, and by many subsequent observations he established the organ and faculty.

The old writers on metaphysics generally admit a special faculty of Imitation, but have been disposed to give it a much wider field of action than Phrenologists attribute to it, since they appear to think the power of acquiring knowledge largely or entirely depends upon it, whereas observation shows that the kinds of knowledge are various, and that those who possess the most active imitative powers may not evince quickness of apprehension. A man may be very successful as an actor, but be far from remarkable for his knowledge of literature and science.

Dr. Gall relates of Garrick that he possessed such an extraordinary talent for mimicry, that having seen for a moment at the court of Louis XV. the King and a number of other personages, he carried away in his recollection the manner of each of them. Inviting to supper some of the friends who had accompanied him to court, he said: "I have seen the court only for an instant, but I will show you the correctness of my powers of observation and the extent of my memory." He placed his friends in two files and retired from the room. Re-entering immediately, his friends exclaimed: "Ah, here is the King, Louis XV., to the life!" He imitated the other personages of the court, who were also instantly recognized. He imitated not only their walk, gait, and figure, but also the expression of their countenance. The eminent Cabanis related a case of disease of the brain, evidently in the tissue constituting this organ, as the patient felt himself impelled to repeat all the movements and attitudes which he witnessed, and expe-

rienced insupportable anguish if he were prevented from obeying this impulse.

This faculty appears in some of the lower animals. Dr. Good says of the mocking-bird: "Its own natural note is delightfully musical and solemn; but beyond this, it possesses an instinctive talent of imitating the notes of every other kind of singing bird, and even the voice of every bird of prey so exactly, as to deceive the very kinds it attempts to mock. It is, moreover, playful enough to find amusement in the deception, and takes a pleasure in de-



Fig. 58—Head of a Monkey.

coying smaller birds near it by mimicking their notes, when it frightens them almost to death or drives them away with all speed by pouring upon them the screams of such other birds as they most dread." It is very conspicuous in the monkey tribe as is generally known, and furnishes the material for most of the amusing anecdotes told of ape-trickery.

The ease with which some persons adapt themselves to the mood or manner of others and so form desirable associations or obtain their good-will and co-operation, depends

largely upon the possession of a liberal development of Imitation. Hence the faculty bears a very important relation to success in all the affairs of life which require personal communication of man with man.

The position of this organ indicates that its function is related naturally to the observance and expression of the moral and perfective attributes of human nature, and, therefore, it is obviously an element in the higher growth of man. In those organizations which are conspicuous for development of the moral sentiments, Imitation is usually well-marked. Dr. Brown says that it would seem as if "the Creator intended that the legitimate exercise of Imitation should be directed to the copying of virtuous actions and the enhancement of the effectual manifestation of the intellectual faculties."

### MIRTHFULNESS.

This organ is also named Wit, and lies in the upper lateral portion of the forehead adjoining the temporal ridge of the cranium and between Causality and Ideality. (See Fig. 17–23). Its function is to impart to the mind a sense of what is witty, ludicrous, and incongruous. Upon its size depends the disposition to be humorous and to enjoy the comical and grotesque.

The analysis of the part performed by this organ in mental affairs has been the theme of much discussion among Phrenological writers and others, some attributing to it a wider province than that of appreciating the mirthful, and, consequently, including it among the reasoning faculties. Mr. Combe considers the faculty from many sides in his "System," and coincides himself with the opinion of Dr. Spurzheim that it is concerned in the manifestation of any form of intellectual conception combined

with the sentiment of the incongruous. In other words, that its function is to inspire witty and ludicrous associations of ideas. Like the other organs, its expression varies in accordance with the mental culture and the influence exercised upon it by other faculties.

Mirthfulness is a very important element in the mental constitution. It would be a dreary world if all men were habitually grave and solemn, and our social gatherings would be deprived of a large share of their pleasurable and even profitable influences if the humorous element were wanting. It imparts an exhilarating influence to



Fig. 59.—Mirthfulness Large.

mind and body, which is highly conducive to health, and we have Scriptural authority for saying, "A merry heart doeth good like a medicine," while Shakspeare adds his testimony, to the effect that "A merry heart lives long."

In the heads of those writers whose works are remarkable for humor and wit, like Sterne, Goldsmith, Sheridan, Benjamin Franklin, Joseph C. Neal, Mr. Clemens ("Mark Twain"), and in eminent comedians, the organ, or rather the region of the head in which it lies, is very prominent. Fig. 60 shows a moderate or small development of the

organ. Savage races are generally lacking in Mirthfulness, as they are also in Ideality. The American Indian's forehead is characterized by narrowness in the upper part, while it retreats rapidly, leaving the perceptive organs strikingly conspicuous.

The size of Mirthfulness is not always indicated by the breadth of the forehead, because Comparison and Causality, when both large, may impart considerable expansion to the upper part of the brow. If, however, we take the center of ossification in the frontal bone, which is also the center of Causality, and observe the expansion of the head outwardly from that point as well as the distance of the region from the opening of the ear, being careful to allow sufficient space for the development of Causality, we shall be guided to a correct estimate of the organ.



Fig. 60.—A Civilized Indian.

# CHAPTER VIII.

## THE ORGANS OF THE SOCIAL AFFECTIONS.

### AMATIVENESS.

THE most careful researches have indicated the cerebellum as the seat of the procreative instinct. The position of the cerebellum is shown in Fig. 11 lying directly under the posterior lobes of the cerebrum. (See also Fig. 17–1). Its size is measured by the peripheral expansion of the cranial parts below the occipital spine and between and backward from the ears.

A faculty or disposition is obviously essential to the continuance of animal life in its successive generations, and it is the function of Amativeness to inspire the sexual feeling incident to such continuance. In the normal activity of this faculty there is nothing that is base or lewd. On the other hand, it exerts a pleasing and refining influence upon the minds of the sexes in their association; awakening in each a kindly interest in all that concerns the other. "In this quiet and unobtrusive state of the feeling," says Mr. Scott, "there is nothing in the least gross or offensive to the most sensitive delicacy. So far the contrary, that the want of some feeling of this sort wherever it appears is a very palpable defect and a most unamiable trait of character. Its action softens all the proud, irascible, and anti-social principles of our nature in

everything which regards the sex that is the object of it; and it increases the activity and force of all the kindly and benevolent affections This explains many facts which appear in the mutual regards of the sexes toward each other. Men are, generally speaking, more generous and kind, more benevolent and charitable toward women than they are to men, or than women are to one another."

In newly-born children the cerebellum as compared with the cerebrum, is as one to thirteen, fifteen, or twenty.



Fig. 61.—Amativeness Large.



Fig. 62.—Amativeness Small.

It increases greatly in size at puberty, and attains its maximum between the ages of twenty and twenty-five. Its size then, in comparison with the cerebrum, is as one to eight. It is in general relatively smaller in females than in males. While there is much difference of opinion among physiologists, who do not accept Phrenology, with respect to the relation of the cerebellum to muscular movement or motory impulse, high authority seems to be in accord in locating the sexual propensity in some part of the cerebellum.

PHILOPROGENITIVENESS.

This organ is marked in the general diagram as lying on the mesial line of the head just above the cerebellum. It occupies in the brain the lower occipital convolutions adjacent to the occipital protuberance of the cranium. Its function, as indicated by its name, is that of imparting an instinctive love of the young, especially of one's own children. It is adapted to the helplessness of infancy and the weakness and inexperience of childhood. Without the fostering care which this faculty inspires, the young of man and most of the lower animals would perish in their infancy, and their races would soon become extinct. But the Creator has made provision for the continuance of His creatures by endowing them not only with a powerful instinct of propagation, but also with an intense love of offspring which leads them to the most self-sacrificing efforts in watching over, protecting, and providing for their progeny. Many animals, by nature most timid, become bold and dauntless when their young are assailed, and the most ferocious possess a tenderness for their offspring which elicits the admiration of the observer. There is a pathos in the affectionate solicitude of the lioness and tigress for their cubs which has often turned the hunter from his purpose of destruction. The eagle will fight with desperate fierceness against the attempts of man to approach her nest when it contains a brood, and all are acquainted with the reckless audacity of the domestic fowl when she deems her chick in danger.

"It is a remarkable ordination of nature," says Mr. Combe, "that the direction of this feeling bears a reference to the weakness and helplessness of its objects rather than to any other of their physical or moral qualities. The

mother dotes with fondest delight on her infant in the first months of its existence when it presents fewest attractions to other individuals; and her solicitude and affection are bestowed longest and most intensely on the feeblest member of her family."

This organ, as a rule, is much larger in women than in men, and in the females of all animals than in the males. There are, however, notable instances of deficiency of this organ even in women. Dr. Gall relates the case of a lady of Vienna who loved her husband tenderly, but who sent



Fig. 63.—PHILOPROGENITIVENESS LARGE.



Fig. 64.—PHILOPROGENITIVENESS SMALL.

from home as soon as they were born all the nine children to whom she gave birth and for years never asked to see them. She was unable to account for this want of affection toward her offspring, and was somewhat ashamed of it. To satisfy her conscience, she insisted on her husband seeing them every day and taking charge of their education. Drs. Gall and Spurzheim found the organ deficient in twenty-five out of twenty-nine infanticides whose heads they had occasion to examine.

The skulls of the Esquimaux present a great prominence

in the region of this organ, and many Arctic travelers have made mention of the extreme ardor of affection which they manifest toward their children. Captain Parry says, in speaking of these people: "Nothing, indeed, can well exceed the kindness with which they treat their children; and this trait in their character deserves to be the more insisted on because it is in reality the only very amiable one which they possess."



Fig. 65.—A Native of Zanzibar.

Crantz's testimony is equally strong as to the manifestation of this faculty by this people. He says that "While you will scarce find a Greenlander do good to one another without the mercenary hope of some speedy retribution, there are, on the other hand, traces of a stronger love between parents and children and the many passions arising from it than there are among other nations. A mother

can not suffer her child to be out of her sight, and many a mother has drowned herself because her child hath been drowned."

Like the inhabitants of the Arctic zone, the negroes of the torrid are remarkable for their parental affection, and the negro skull is equally remarkable for its occipital elongation or fullness. On the other hand, some of the uncivilized tribes show a decided lack of consideration for their young. Rev. J. G. Wood states that the native Sandwich Islanders are indifferent to their children, often leaving them to hunger and exposure through negligence. In the skull of this race the organ of Philoprogenitiveness is but moderately indicated, and signally deficient when compared with its development in the negro.

Dr. Spurzheim, in his discussion of the anatomical relation of this organ, says: "In mammiferous tribes the cerebral crura are evidently divided into two parts, namely, an anterior and external and a posterior and internal mass; two superficial furrows mark their limits respectively. They bear no regular proportion to each other in the human kind. The anterior and external portion composes two-thirds at least of the entire crura; but in the lower animals, the posterior is by much the more considerable portion of the two."

Dr. J. P. Brown argues from this as follows: "Now, since it is anatomically certain that these posterior and internal divisions pass on to form the posterior lobes of the brain after having acquired a great augmentation of bulk in their passage through the thalami, and as these divisions of the crura and also of the thalami are proportionately much larger in the lower animals than the anterior, which go to form the frontal and superior lobes, it follows that these lobes which are supposed to be wanting in these

creatures must not only exist, but be even larger in relation to the anterior and superior portions of the brain than is the case in the human kind, wherein the anterior divisions of the crura compose at least two-thirds of their whole bulk. These anatomical facts explain the relative superiority as to size of the frontal lobes of the brain in mankind and their relative inferiority in the brains of all the lower animals, not excepting the orang-outang, chimpanzee, or gorilla.

"But the presence of these unequal divisions of the crura can not belong to mammiferous animals alone, for birds and reptiles possess the crura, and also parts closely attached to these, which Spurzheim positively avers to be strictly analogous to the thalami and corpora striata. The posterior lobes of the brain, of which the larger divisions of the crura are the nucleus in animals that suckle their young, must, therefore, exist in birds and other animals that are not mammiferous. A similarity of function in all of them must be the necessary consequence, and long experience proves infallibly that the degree of ardor evinced by animals in taking care of their young depends upon the greater or less development of the central part of the posterior lobes of the brain."

Even birds exhibit a marked disparity in this feeling. The cuckoo lays her egg in another bird's nest and takes no further care of it. The skull of the cuckoo is about the same size as that of the partridge, which is always most solicitous for the welfare of her young; but there is a marked difference between the two skulls in configuration of that part in which the posterior lobes lie. In fact, there is a palpable depression in the skull of the cuckoo and a marked protuberance in that of the partridge in that part of the head which lies immediately above the cerebellum.

Several interesting cases of disease in this organ are recorded. Dr. Andrew Combe mentions a patient, who, during a temporary alienation of mind which lasted for three days, expressed continual solicitude for her children; imagining that they were in distress or murdered, carried away and exposed to every calamity. She complained on recovery of having had a pain in the back part of her head; and in indicating the place, laid her finger on the organ of Philoprogenitiveness.

INHABITIVENESS.

The discovery and location of this organ are due to Dr. Spurzheim, who was of the opinion that the space in the



Fig. 67.—Inhabitiveness Large.

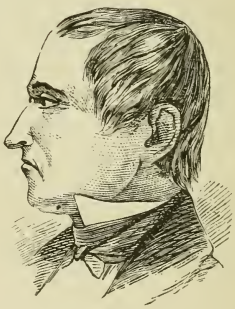


Fig. 68.—Inhabitiveness Small.

occipital lobes on the mesial line between Philoprogenitiveness and Self-esteem should be allotted to it. (See Fig. 17–4). Mr. Combe concluded from a series of observations that a part of the space, at least that bordering on Self-esteem, was the organ of a faculty which gave a tendency to concentrate the mind within itself, and to give continuity to impressions, and deeming the evidence in

favor of Dr. Spurzheim's discovery insufficient to warrant the acceptance of Inhabitiveness as an independent organ, did not include it in his classification. We are of opinion that the organ is fairly demonstrated, and entitled to be accepted by mental philosophers even in preference to Concentrativeness, although the latter has the support of so acute a reasoner as Mr. Combe. Our reasons for this opinion will appear when we come to discuss that faculty.

The function of Inhabitiveness is to give a love of home, or an attachment to the place where one was born or has lived; since all men can not inhabit one place, or choose their abode in the most favored localities, it contributes to contentment and satisfaction with our dwelling place, although its location may possess many positive disadvantages. A great English poet* writes:

> "The shuddering tenant of the frigid zone
> Boldly proclaims that happiest spot his own;
> Extols the treasures of his stormy seas,
> And his long nights of revelry and ease.
> The naked negro, panting at the line,
> Boasts of his golden sands and palmy wine,
> Basks in the glare, or stems the tepid wave
> And thanks his gods for all the good they gave.
> Such is the patriot's boast, where'er we roam—
> The first best country ever is at home."

This faculty is not only manifested by man, but by nearly every variety of animals. Birds return to the same spot, year after year, to occupy the same nest, to deposit their eggs and to rear their young; and when the chilly winds of autumn blow, they fly away again to their winter home. Even fishes, after spending the winter in the trackless ocean, make their way back to the same stream in which they were hatched, or where they have deposited their eggs.

* Pope. "Essay on Man."

This organ is especially powerful in the inhabitants of mountainous regions. The Swiss and Scotch may be cited as examples, and they are peculiarly liable to nostalgia, or homesickness, on a change of abode.

It also, as may be naturally inferred, has much to do with the sentiment of patriotism, and those who have the organ large are more inclined to exhibit a warm interest in the affairs of their native country, while those in whom it is moderate or small, may show decided indifference to the claims of birth-place.

### ADHESIVENESS, OR FRIENDSHIP.

This organ is found in that part of the brain, termed by Ecker the *gyrus angularis*, lying at and above the middle of the posterior edge of the parietal bone. On the head it is indicated between Inhabitiveness and Combativeness. (See Fig. 17–3). When large, it adds breadth and fullness to the upper occipital region.

The function of this organ is defined to be the manifest action of attachment, friendship; the disposition to cling to any object which is capable of feeling affection. Amativeness is the source of a special attachment to the opposite sex. Philoprogenitiveness is devoted to the child, the nurseling, but Adhesiveness embraces all creatures which are capable of experiencing fondness. It not only disposes us to friendship and sociability with our fellow-men in general, but also inspires the feeling of attachment for dumb animals under our care. The fondness which many men bestow on horses and dogs, springs from the instinctive activity of this faculty. It is the bond of union among men, and the basis of society. In the lower animals it is exhibited in the gregarious instinct. Some animals, as the lion, the tiger, and the eagle, live by themselves, and never

associate with others of their kind. On the other hand, sheep, horses, cattle, and many varieties of birds, fishes, and insects, are bound together by a community of feeling which appears to afford them pleasure and satisfaction, and which occasions them much uneasiness when they are separated from their fellows. Pigs sometimes refuse to eat, and horses and oxen have been known to pine and become sick when deprived of accustomed companions.



Fig. 69.—Friendship Large.

The case of Mr. Sprague, of South Deerfield, Conn., which has been previously referred to, is an interesting instance of disease in this organ. While yoking cattle, he was struck on the head by the horn of one of them. His wife related that although formerly very kind and affectionate, after he had received the injury, he grew morose and irritable to such a degree, that he could scarcely toler-

ate her presence. When his former friends called to see him he would order them at once out of the house, while he was courteous and affable toward strangers. After his death his brain was dissected, and it was found that the organ of Adhesiveness had become extensively diseased.

Persons distinguished for zeal in philanthropic works have the organ large. Such was the case with Robert Owen, the hopeful, enthusiastic humanitarian, as is shown in the cast of his head; while those who are cold, reserved, solitary in disposition, are lacking in Adhesiveness. Notorious criminals are generally deficient in social feeling, hence experience little or nothing of its instinctive hostility to a warfare on society. Dr. Benedict, of England, found in the course of an extended series of researches into the cranial organization of criminals, that they were generally lacking in upper-occipital development. The organ is very small in Fig. 68, and but moderately shown in Fig. 70.

### CONCENTRATIVENESS.

As has been already stated, Mr. Combe rejected the organ of Inhabitiveness as defined by Dr. Spurzheim, but accepted it in part as performing a different function. We are inclined to consider Mr. Combe's Concentrativeness as not so well established as Dr. Spurzheim's Inhabitiveness, for reasons which may be stated in brief, thus:

To Concentrativeness is attributed a property which is mainly related to the intellect, viz., "to give continuity to *impressions*, be they feelings or ideas" (Combe). This being considered the law of grouping, to which phrenologists attribute a very high importance, is evidently transgressed by the location of an organ with such a faculty in a part of the brain so remote from organs with which it is alleged to co-ordinate chiefly.

The strength and intensity of the organs generally are dependent upon their size and activity, and any one which happens to be dominant in the character possesses the quality of Concentrativeness. Combativeness, when large, needs but an exciting occasion to awaken its sentiment of defense or bold aggressiveness, and the strength of its manifestation is usually proportioned to the degree of aggravation. The larger the organ of Cautiousness, the more alert the faculty in its apprehension of danger or in-



Fig. 70.—Concentrativeness Large.

security. The more developed the perceptive elements of the intellect, the more rapid and comprehensive their acquisition of facts and impressions. Hence, persistency or continuity of action, inheres in the very constitution of an organ, and is expressed according to the organ's strength.

Many of the most illustrious men in science and letters, spheres in which concentration is indispensable to shining success, do not show that part of the head assigned to Concentrativeness as a special faculty large in their heads

The casts of Spurzheim, Sir John Franklin, W. E. Channing, Henry Clay, William Godwin, Benjamin Constant, Fuseli, Prof. Morse of telegraph fame, and Silas Wright, do not indicate a fullness in the region bordering on the lower margin of Self-esteem, but the contrary.

Again, the evidence furnished by extended observation and the facts of personal history lead us to the conclusion that the power of intellectual concentration is "the product of a well-balanced series of cerebral organs." Dr. Browne, who rejects Concentrativeness, very pertinently says on this point: "When long-tried experience discloses the fact that some men renowned for superiority of genius were but scantily endowed with the organ, upon the largeness of which concentration of the mental powers was, by some eminent men, supposed to depend, when such is the case, there is afforded positive assurance that there does not exist any special single organ capable of causing the simultaneous concentrated action of so wide a range of mental qualities differing intrinsically from one another, and which have the power of acting in harmony only when the several organs upon which these qualities depend are well developed and harmoniously balanced with those of Time and Order."

The late Judge Dean, of Albany, N. Y., in his admirable lectures, reasons thus against the existence of such an organ: "The functions of the several faculties are nothing more than their several modes of action consequent upon the relations existing between them and the objects upon which they are destined to act, and be acted upon. These relations have the force and effect of natural laws. To allow the existence of a faculty the function of which is of a supervisory character and the office of which is to combine, concentrate, and continue the action of the different

faculties when nature has already established the relations between them and their objects, would seem to be nothing more in effect than to suppose that nature made a second provision for the purpose of controlling, and thus rendering nugatory the first, or to save her credit by its efficiency, supposing the first to fail."*

The advocates of an organ for Concentrativeness, however, are numerous, and some of them of pre-eminent ability, whose opinions command the respect of scientific men generally. One was the learned Vimont, who defines its function to be that of giving a disposition to dwell on feelings and ideas for a length of time, till all, or the majority, of the other faculties are satisfied in regard to them; thus imparting thoroughness to the mental operations by disposing us to hold the other faculties to a train of thought, or a course of reasoning, till we arrive at a legitimate conclusion.

"Some persons," says Mr. Combe, "can detain their feelings and ideas in their minds, giving them the quality of continuity; while others can not do this. The minds of the latter may be compared to the surface of a mirror, on which each feeling and thought appears like the shadow of a moving object, making a momentary impression, and passing away. They experience great difficulty in detaining their emotions and ideas so as to examine and compare them; and, in consequence, are little capable of taking systematic views of any subject, and of concentrating their powers to bear on one point. I have observed this organ to be large in the former and small in the latter."

Mr. Nicholas Morgan, a well-known English phrenologist and author, strongly advocates the existence of an organ in the place assigned by Mr. Combe to Concen-

* "Lectures on Phrenology," AMOS DEAN.

trativeness, and terms it "Continuitiveness." In the course of a somewhat thorough review of the history of Inhabitativeness and Concentrativeness in his "Phrenology, and How to Use It," he takes the ground that there are "insuparable objections" to the existence of an organ with the powers Mr. Combe attributes to it; that it could only act "as a predominating propensity or intellectual faculty beyond the control of the will."

Mr. Morgan's organ does not "concentrate" the action of the faculties, it merely imparts the tendency to continue in activity, to incline the mind to constancy of pursuit, and thus prevent it from dissipating its energies by fitful changes. We are of opinion that the difference between this author and the advocate of "Concentrativeness" is more a matter of finely drawn analysis than of genuine disagreement, and it seems to us that the functions attributed to both Concentrativeness and Continuity usurp much of the power belonging to Firmness.

# CHAPTER IX.

## THE SELFISH SENTIMENTS.

### CAUTIOUSNESS.

THE sense or dread of danger is generally recognized by metaphysicians as a primitive faculty in man and in animals. Dr. Gall attributed to the sentiment a property of foresight, and called it *Circumspection*, *Foresight*. Dr. Spurzheim, however, did not accept this opinion, believing the organ to be related simply to the feeling of fear or insecurity, and named it Cautiousness. Later phrenologists generally accept Spurzheim's analysis.

The situation of the organ is in the central parts of the lower parietal convolutions, and is indicated in that part of the cranium where it begins to round off to form the crown; in other words, its place is near the middle of the parietal bone. (See Fig. 17–11).

The activity of this organ leads an individual to apprehend danger, and thus disposes him to caution and prudence; to hesitate and to look well to the consequences before he acts. Such a mental faculty as this is obviously essential to creatures who are hedged about on every side by laws whose violation subjects them to inconvenience, to suffering, or to death. The great majority of our misfortunes result from a lack of prudence and forethought, which it is the function of this organ to awaken. It is an ever-present monitor, whispering in our ear, Beware! take care!

A deficiency of this organ renders a person careless, heedless, and reckless, especially if Combativeness and De-

structiveness be large; and he may suffer a thousand misfortunes in the little affairs of life which can clearly be referred to a constitutional want of precaution. On the other hand, a too large endowment of this faculty produces irresolution and hesitancy, which unfit the individual for occupying positions requiring vigorous and decisive conduct. He sees dangers where none exist, and magnifies



Fig. 71.—Cautiousness Large.

the difficulties which lie in his way. He is often a standing cause of ridicule to his less cautious neighbors, who look upon his forebodings as trifling and absurd.

In its morbid activity, this organ produces sensations of fear and apprehension which are highly distressing. Gloom and despondency pervade the mind, and no ray of hope lights up the dark and dismal future. Life to an individ-

ual in this state often appears an intolerable burden, and he flies to self-destruction as the only means of freeing himself from misery.

Pinel, under the head of Melancholy, mentions several cases of disease of this organ. "A distinguished military officer," says he, "after fifty years of active service in the country, was attacked with disease. It commenced by his experiencing vivid emotions from the slightest causes. If, for example, he heard any disease spoken of, he immedi-

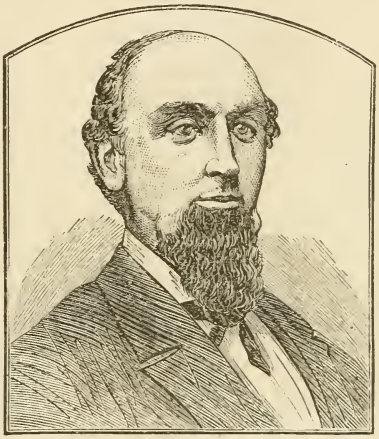


Fig. 72.—Cautiousness Moderate.

ately believed himself to be attacked by it; if any one was mentioned as deranged in intellect, he imagined himself insane, and retired into his chamber full of melancholy thoughts and inquietude. Everything became for him a subject of fear and alarm. If he entered into a house, he was afraid that the floor would fall, and precipitate him amid its ruins. He could not pass a bridge without terror, unless impelled by the sentiment of honor for the purpose of fighting."

Dr. Gall also mentions two fathers of families who, though in easy circumstances, were tormented night and day by the fear that their wives and children were liable to die of hunger. No amount of reasoning could convince them that this fear was groundless. This phase of its derangement is familiar to physicians having charge of lunatic asylums.

Cautiousness is an element in the mental constitution of all the lower animals, and it is a faculty clearly essential to their very existence, since almost every species is the prey of some other species, and life is maintained by almost constant vigilance. It would seem natural that in the lower animals the female should possess a larger endowment of this faculty than the male, because of the greater protection which she requires in her offices of motherhood, and this, accordingly, appears to be the fact. The organ is usually large in children, and those who have it small are remarkable for their tendency to accidents and rash conduct. The portraits of Charles XII. of Sweden exhibit Cautiousness very small, in keeping with his recorded disregard of personal safety. Hoppmer's portrait of Nelson shows the organ small, and in the bust of George III. of England it is decidedly moderate. In the portrait of Mr. L., Fig. 72, the organ is but moderately shown.

### APPROBATIVENESS.

The best metaphysicians admit the existence of a primitive faculty in man which inclines him to desire the good opinion of others, and which tends to render society harmonious by its promotion of individual forbearance and good-will. The circumstances which led Dr. Gall to discover the organ of this faculty, induced him to treat of it under the names of Vanity, Ambition, and Love of Glory.

Dr. Spurzheim, however, carefully analyzed the sentiment, and designated it as now generally received.

Approbativeness lies in that part of the brain known to the later physiologists as the *gyrus angularis*, or angular convolution. On the cranium its place is a little above the lambdoidal suture, upward and a little backward from Cautiousness. (See Fig. 17–12).

It is its function to produce the desire for admiration,



Fig. 73.—Approbativeness Large.

approval, praise, and fame. It takes its direction from combination with other faculties. If the moral sentiments are predominant, it will inspire the person with ambition to be esteemed for moral excellence. Combined with intellect, it will seek to shine in science and literature. Or, if the animal propensities are in the ascendency, the man will find gratification in being esteemed the biggest eater, the greatest fighter, or the most daring rogue of his class. It impels the poet, the painter, the orator, and the artisan

to strive after excellence in their various pursuits, and is thus an important element in human progress.

In general society the influence of this faculty is immense. It is the chief source of fashion, pomp, and show, which are so generally courted, and to obtain which so many sacrifice comfort, health of body, and peace of mind. When too active, it is thus the source of much unhappiness to its possessor. Few, indeed, attain the summit of their ambition; to the great majority life is a continual and vain struggle after riches, honor, or fame. Yet to such minds a becoming appearance in the eyes of the world is a matter of the greatest importance, and in maintaining this, they invite poverty and distress.

"A due endowment of this faculty," says Mr. Combe, "is indispensable to an amiable character. It gives the desire to be agreeable to others; it is the drill-sergeant of society, and admonishes us when we deviate too widely from the line of march of our fellows; it induces us to suppress numberless little manifestations of selfishness, and to restrain many peculiarities of temper and disposition from the dread of incurring disapprobation by giving offense; it is the butt upon which wit strikes, when, by means of ridicule, it drives us from our follies. To be laughed at is worse than death to a person in whom this sentiment is strong.

"The feeling which is most commonly experienced when this organ is large, even when favorably combined with other organs, is anxiety about what the world will think of us. A youth in whom it is powerful can not do this thing, because everybody will look at him; or can not do the other, because people will wonder. In older persons it produces a fidgety anxiety about the opinion of the public, or of the circle of acquaintances who compose the public

to them. This anxiety about public opinion, when too great, is subversive of happiness and independence. It renders the mere *dicta* of the society in which the individual moves, his code of morality, religion, taste, and philosophy; and incapacitates him from upholding truth and virtue, if disowned by those whom he imagines influential

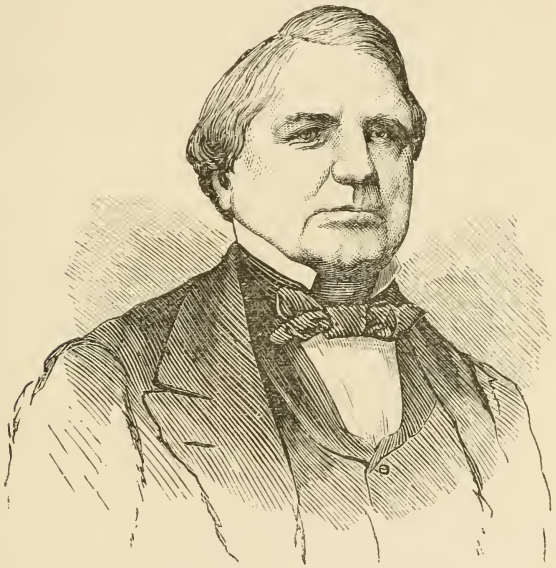


Fig. 74.—Capt. Ward.

or genteel. The want of a philosophy of mind allows wide scope to the aberrations of this faculty; for, in the absence of well-defined principles of taste and conduct, individuals of high pretension dictate with success, fashions, however absurd, which the herd of mankind follow."

The French, as a people, exhibit conspicuously the in-

fluence of Approbativeness; it imparts to their language and manners the character for courtesy and affability which has so long distinguished them. In the English people Self-esteem is comparatively predominant, and the language of compliment does not flourish among them.

This faculty is manifested by the horse, the dog, the peacock, and others of the lower animals. "Every one knows," says Dr. Gall, "that in the south of France they decorate the mules with bouquets when they travel well. The most painful punishment which can be inflicted on them is to deprive them of their bouquets and tie them to the back of a carriage. I have a female ape; whenever they give her a handkerchief, she throws it over her, and takes a wonderful pleasure in seeing it drag behind like the train of a court-robe."

As would be expected in a man so much given to "sacrificing to the Graces," the busts of Lord Chesterfield show a very large development of this organ. In Napoleon's head it was salient. As a general rule Approbativeness is larger in woman than in man, in correspondence with her more sensitive and emotional nature. Captain Ward, of Lake Michigan fame, (Fig. 74), was but meagerly endowed with this organ, while Firmness and Self-esteem were very strong, and supplied those elements of positive individuality for which he was distinguished.

### SELF-ESTEEM.

This organ is situated in the posterior central convolution, just back of the upper branch of the fissure of Rolando, or the *postero-parietal* sulcus of Huxley. It is shown on the mesial line of the head where the coronal surface begins to decline to form the occipital region. (See Fig. 17–13). When large, it gives height to the head

upward and a little backward from the ear. A line drawn from the opening of the ear through the center of Cautiousness will pass through the center nearly of this organ, as well as of that of Approbativeness.

Self-esteem, when normally active, imparts dignity, self-respect, self-reliance, and independence of character—that degree of self-confidence and self-satisfaction which enables the other powers to act to the best advantage, free from the restraints imposed by the fear of incompetency. It gives dignity and pride of character, a disposition to rise



Fig. 75.—Self-Esteem Large.—Miss C.

above things that are mean and trifling, and to despise whatever is unworthy of an honorable and exalted mind.

When the organ is small, a tendency to humility is the result. The individual lacks confidence in himself, or a becoming sense of his importance. He shrinks from undertakings which he may have abundant capacity to carry out. Many persons achieve success through the self-confidence which this faculty inspires. "They are able, because they think they are able." On the other hand, many persons of much greater ability fail in similar cir-

cumstances because a lack of Self-esteem makes them hesitate to assume responsibility.

When unduly active and unrestrained by the higher sentiments, it renders the individual haughty, domineering, and arrogant. A child in whom it is very strong will be headstrong and willful, and disposed to disobedience; and such a one may be seriously injured by improper treatment and training, if his parents be not conversant with the nature of his organization.

It is quite common for people who are not conversant



Fig. 76.—Self-Esteem Small.

with the close distinctions of Phrenology, to confuse the terms pride and vanity, when alluding to the character of others. Dr. Gall discusses these traits with much care, and says:

"The proud man is imbued with a sentiment of his own superior merit, and from the summit of his grandeur treats with contempt or indifference all other mortals; the vain man attaches the utmost importance to the opinions entertained of him by others, and seeks with eagerness to gain their approbation. The proud man expects that mankind

will come to him and acknowledge his merit; the vain man knocks at every door to draw attention toward himself, and supplicates for the smallest portion of honor. The proud man despises those marks of distinction which on the vain confer the most perfect delight. The proud man is disgusted with indiscreet eulogiums; the vain man

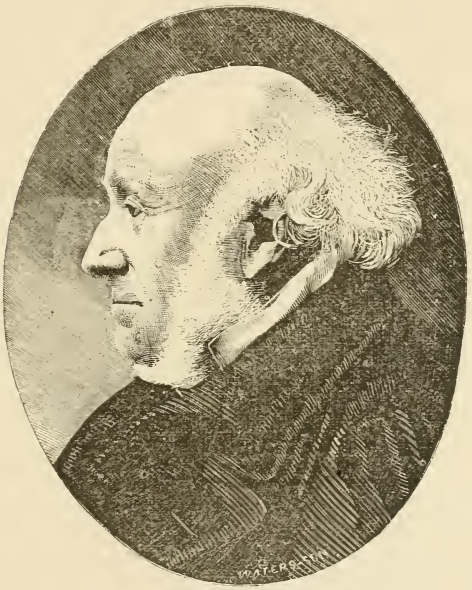


Fig. 77.—Dr. Fossati.

inhales with ecstasy the incense of flattery, although profusely offered, and by no very skillful hand."

In disease of this organ the individual usually imagines himself to be a king, an emperor, or even the Supreme Being. An insane man, some years ago, escaping from his friends, took his station on one of the peaks of the High-

lands on the Hudson. Assuming that he was the Deity, he issued this command, in a loud voice, to the whole universe: "Attention, all creation! in battalions to the right wheel! march!"

Dr. Gall mentions a patient in a charity work-house who declared that he had been crowned by Jesus Christ, and that he was the young man whom the Queen of Heaven had selected for her spouse. His attitude was that of an arrogant despot. Deeply inspired with the sentiment of his high importance, he crossed his arms; and, to give an idea of the astonishing power which he possessed, he struck his breast and sides with violence. When Dr. Gall asked him to be allowed to touch his head, he replied with astonishing arrogance: "I have no head such as common men possess, but a head peculiar to kings and gods." He turned away, holding him utterly unworthy of approaching him. Another case is given by Pinel. "A patient," says he, "confined in a private asylum in Paris, during his fits believing himself to be the prophet Mohammed, assumed an attitude of command, and the tone of the Most High. One day when cannons were fired in Paris on account of some events of the Revolution, he persuaded himself that it was to render him homage; he caused silence to be observed around him, and could not restrain his joy."

In the character of those historic men who distinguished themselves for imperial aggressiveness and self-assertion, like Alexander, Cæsar, Richard III., and Napoleon Bonaparte, Self-esteem was prominent. Martin Luther and John Knox were largely endowed with it. In the busts of John Quincy Adams, Silas Wright, Amos Dean, Dr. Spurzheim, Dr. Fossati, the eminent anatomist and phrenologist of Florence, and Thomas Carlyle it is largely indicated.

FIRMNESS.

We may define the location of this organ as on the mesial line of the head, directly in front of Self-esteem. (Fig. 17–14). In the brain it occupies a part of the anterior central convolution bordering on the fissure of Rolando. Its size is measured by the height of the head directly above the ears. The contour in Figs. 64, 78, and 89 shows the organ to be very large, while in Fig. 76 it is quite the contrary.

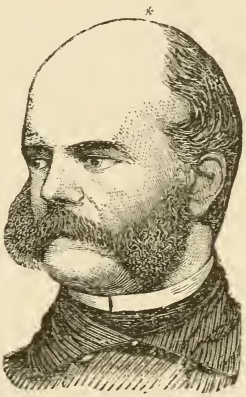


Fig. 78.—Firmness Large.

It is the function of this organ to give fixedness of purpose, perseverance, and determination to character. It has no relation to external objects; its influence operates upon the mind itself, interiorly and subjectively, contributing the quality of steadiness and persistence to the manifestations of the other faculties. When once a person has determined to act in a certain direction, Firmness imparts the disposition to persevere in the purpose until the object has been attained. We may persevere in any given course from two motives: first, because the undertaking is agree-

able to certain faculties, or secondly, because we have resolved so to act. A person in whom Tune is large may persevere in making music, even though Firmness be deficient, because the organ of Tune derives gratification from the exercise. So the pleasure which the activity of Constructiveness gives will lead the individual to persevere in any mechanical undertaking irrespective of the influence which the organ of Firmness imparts. But where any given organ is possessed in a moderate degree, and the intellect resolves upon a course which involves its activity, Firmness then comes in to hold it stable to the purpose till the end has been accomplished. This faculty thus contributes greatly to mental poise and to success in any difficult enterprise. The great men of the world, those who, despite difficulties, discouragements, and opposition, have held to a purpose unwaveringly, which their wisdom has perceived to be fraught with important results, owe their final success and triumph to a large endowment of this faculty.

When the organ is very active and not directed by the intellect, or restrained by the moral sentiments, it renders the individual headstrong, stubborn, and obstinate. He adheres to his opinions or his purposes with an infatuation which all appeals to his reason are powerless to remove. On the other hand, when the organ is small the character will be fickle, unstable, and easily turned from its purpose by difficulties and discouragements. Very little reliance can be placed on one in whom this organ is deficient, because of his liability to yield to impulses which, for the time being, have sway. He holds one opinion to-day, a contrary one to-morrow, and never pursues any line of conduct long enough to achieve any important success. "Unstable as water, he can not excel."

Dr. Gall found this organ very large in a highwayman exceedingly hardened in crime, who was kept in close confinement for a considerable time, with the view to forcing him to disclose his accomplices. Imprisonment having no effect, he was cruelly beaten. Unable to bear this infliction, yet determined not to yield, he strangled himself with his chain. After his death the parietal bones were found separated by the great development of the brain, precisely at the organ of Firmness.

In some of the lower animals this organ evidently exists, producing that stubbornness which they manifest when an attempt is made to force them to act contrary to their inclinations. A balky horse or an obstinate mule is a good illustration of the perverted manifestation of this faculty.

# CHAPTER X.

## THE MORAL AND RELIGIOUS SENTIMENTS.

### CONSCIENTIOUSNESS.

This organ is situated on each side of Firmness, and over the anterior part of Cautiousness. (Fig. 17–15). Dr Gall did not obtain evidence enough to associate this region of the brain with any special faculty. Indeed, he did not see the necessity for such an organ, deeming Conscience or the Moral Sense the primitive function of Benevolence, of which he considered charity a more earnest or fervent mode of action. But in the course of time Dr. Spurzheim became satisfied that it was related to the sentiment of justice, and he designated it by the title which is now generally accepted as well expressing its office in the economy of mind, which is to impress man with an innate sense of right, duty, and accountability. It is the moral sense or conscience within us whispering its approval or disapproval of conduct. Much controversy has existed among philosophers in regard to the ultimate standard of morality, or what constitutes an action right or wrong. Selfishness, utility, the fitness of things, desire to please, obedience to the will of God, for the sake of everlasting happiness, have been severally set forth as the standard by which conduct is regulated. Some philosophers, notably Dr. Reid, Mr. Stewart, Dr. Brown, and Lord Kames, have taught that man is endowed with an internal sense which instinctively discriminates between right and wrong. But Phrenology teaches upon evidence, the same

in kind as that by which the facts in a purely physical science are established, that there is an organ in the brain from which spring our notions of right and wrong, which instinctively impels us to choose the right in preference to the wrong, and whose natural language is *Fiat justitia, ruat cœlum.*

An individual in whom this organ is well-developed is disposed to regulate his conduct by the standard which he believes to be the right, and in the performance of his duty may sacrifice personal interest, and not allow himself to be turned aside by considerations of friendship or the ties of family.

In Scott's "Heart of Mid-Lothian," where Jeannie Deans is represented as giving evidence on her sister's trial which leads to her condemnation, we have an instance of this faculty rising superior to every consideration of self-interest and affection, and holding the mind firmly to its convictions of truth and duty.

"The activity of Conscientiousness," Mr. Combe says, "takes a wider range than regard for the legal rights and property of others. It prompts those in whom it is strong to do justice in judging of the conduct, the opinions, and the talents of others. Such persons are scrupulous, and as ready to condemn themselves as to find fault with others. When predominant, it leads to punctuality in keeping appointments, because it is injustice to sacrifice the time and convenience of others by causing them to wait till our selfishness finds it agreeable to meet them. It prompts to a ready payment of debts, as a piece of justice to those to whom they are due. It will not permit even a tax-collector to be sent away unsatisfied from any cause except inability to pay; because it is injustice to him, as it is to clerks, servants, and all others, to require them to consume

their time in unnecessary attendance for what is justly due and ought at once to be paid. It leads also to great reserve in making promises, but to much punctuality in performing them. It gives consistency to the conduct; because when every sentiment is regulated by justice, the result is that 'daily beauty of the life' which renders the individual in the highest degree amiable and respectable. It communicates a pleasing simplicity to the manners



Fig. 79.—Conscientiousness Large.

which commands the esteem and wins the affection of all well-constituted minds."

Yet a large development of Conscientiousness may exist in a brain with large Firmness, Self-esteem, and Combativeness, the moral organs besides Conscientiousness being moderate, and the person so constituted be found occasionally to do or attempt that which would be manifestly

unjust. "Do we not in our course through life," says Dr. Browne, "meet with men of the strictest integrity in all their dealings who nevertheless fall short of that true disinterestedness which always characterizes the man in whom benevolence predominates?" "Do we not find some individuals strictly upright in conducting the affairs of others whose judicial vision would become obscured in respect to impartial justice, should their own personal interests be implicated in the adjustment?"



Fig. 80.--CONSCIENTIOUSNESS SMALL.

The demeanor of such persons is due to the predominant activity of the strong organs which minister to self; their energy for a time surpassing the control of the organs which inspire the sentiment of duty and obligation.

Where this organ is deficient, there will be but a feeble sense of duty and obligation, and the individual will be characterized by a general lack of principle. His conduct will take the direction of his strongest feelings, irrespective

of truth and justice. If Acquisitiveness be powerful, he will seek its gratification by the most direct means, regardless of the rights of others. If Approbativeness be active, he will adopt any line of conduct which will please, however it may violate justice and propriety. He will be specious and fair to the face of a friend, and affect to join in his likes and dislikes, yet he will not hesitate, behind his back, to make fun of the weaknesses which were praised to his face, and to join with his enemy in the condemnation of his character. In short, the individual in whom this organ is deficient will be unscrupulous and unreliable wherever truth, honor, and justice are concerned.

In an inflammatory disease of this organ the mind is harrowed by the most awful feelings of guilt and remorse. This phase of its manifestation is familiar to guardians of the insane. In persons of a religious turn it sometimes gives rise to feelings of utter unworthiness, and when combined with large Cautiousness, there is a fearful looking forward to judgment, and an utter hopelessness or despair which is appalling. A clergyman, from diseased activity of this organ, believed himself to be the cause of all the bloodshed of the French Revolution. Another man who owed nothing, believed that he was in debt to an enormous amount which he had no means of paying, and that he deserved to be devoured by rats. When large, Conscientiousness imparts an elevated roundness to the part of the head in which it lies. The cast of Dr. Gall shows a marked fullness there. In the head of Laura Bridgman, the celebrated deaf, dumb, and blind woman, the development of this organ is extraordinary. In the portrait of Madame Wildermuth, Fig. 79, the organ is so much developed as to cause the head to appear flattened in the crown.

## HOPE.

In the human adult brain the upper frontal convolution has generally a longitudinal fissure running almost centrally with its upper extremity near the superior border of the convolution. Outwardly and backward from this fissure in the brain matter and bordering upon its upper extremity the organ of Hope has its location, which is directly in front of Conscientiousness. A line drawn upon the head perpendicularly upward from the opening of the



Fig. 81.—HOPE LARGE.

ear will pass just back of the space allotted to it. (See Fig. 17–16).

Its function is to give a tendency to believe in the future attainment of what the other faculties desire. It reaches forward into the future, and ignoring the slow, plodding, and uncertain steps by which success is usually secured, delights in the contemplation of its consummation. It thus tinges the future with a rosy hue, by dispelling doubt and the fear of failure, and furnishes a powerful incentive to the activity of the other faculties by impressing the mind with a conviction of the certainty of success.

Dr. Gall did not recognize the existence of a separate faculty of Hope, but deemed it an affection of other powers. Dr. Spurzheim, however, was of the opinion that it is a primitive sentiment and quite different in nature and influence from the mere desire or want experienced by other faculties. He looked for its manifestation as a physical organ in the neighborhood of Veneration, and his own observations, together with those of other inquirers, demonstrated the soundness of his judgment.

A large endowment of this faculty, combined with large Acquisitiveness and moderate Cautiousness, makes the man who, not satisfied with the moderate returns of prudent business effort, launches boldly into speculation and commercial ventures, and is urged on by a belief in the success of his projects. To such a man failure may cause temporary despondency, but he soon rises above it, and forgetting the defeats and misfortunes of the past, leaps again into the arena of new enterprises with fresh buoyancy. It is somewhat difficult to illustrate by an engraving the development of this organ. In Fig. 81 the fullness of the top-head indicates that it is large. From Fig. 82 (Large Spirituality) the reader may obtain an idea of its appearance, when large, in a front view of the head.

Where this organ is small and Cautiousness large, the individual will be lacking in enterprise and disposed to take gloomy and despondent views of life. A cloud will hang over his future; he will see mountains in mole-hills, and every difficulty will be a lion in his pathway. If Acquisitiveness be large, he will have a strong desire to become rich, but in compassing his desire will resort to saving rather than to speculation. His favorite motto will be, "A bird in hand is worth two in the bush."

From the existence of this faculty in the human mind

an argument of considerable force may be drawn in favor of a future life. Every mental faculty stands in a definite relation to some external object which is naturally fitted to afford it scope for activity and gratification. Cautiousness is given, and we are surrounded by dangers which are to be feared and guarded against. Combativeness is naturally related to the difficulties which beset our pathway, and which it is highly important that we should meet and overcome. Philoprogenitiveness is admirably fitted to the necessities of helpless infancy. The fact that we possess an organ of Veneration is sufficient proof that there must be objects fitted to afford it scope and gratification, and from its natural promptings we instinctively feel that there must be a power to be worshiped and adored. So Hope, instinctively reaching forward into futurity, would have but a limited field for its activity if it did not reach beyond the confines of the present life. The course of life is quickly run, and our hopes and aspirations, our joys and our sorrows, in the course of a few years, are numbered with the things of the past; but even when all our earthly expectations are extinguished in old age, we are not left disconsolate, for Hope still reaches forward to a land beyond the grave where the misfortunes and mistakes of this life will be corrected, and happiness abundantly compensated for the sorrow and pain we have experienced. The organ was remarkably developed in the head of Sir Walter Scott, and was the secret of his buoyancy and cheerfulness when weighed down by accumulated misfortune, debt, and anxieties. When at the age of fifty-five he found himself pressed by creditors to whom he owed more than half a million of dollars, he calmly set to work to win by literary toil the money due. "Gentlemen," said he, "time and me against any two. Let me

take this good ally into company and I believe I shall be able to pay you every farthing."

MARVELOUSNESS, OR SPIRITUALITY.

The situation of this organ is in the superior lateral region of the brain directly forward from Hope, and below Veneration. (Fig. 17–17). Its function is to inspire trust or belief in the strange and the marvelous. It is the basis of the longing after novelty, and thus stimulates intellectual progress.



FIG. 82.—SPIRITUALITY LARGE.

In its relation to the spiritual elements of human character it prompts to belief in the supernatural and religious. Dr. Gall was led to the discovery of this organ by observing that some individuals imagine themselves to be visited by apparitions of persons dead or absent, and the question occurred to him, How does it happen that men of considerable intellect often believe in the reality of ghosts and visions? Are they fools, or impostors? Or is there a particular organization which imposes, in this form, upon the human understanding? and how are such illusions to be explained? He studied the history of those remarkable

for this quality of mind, and in comparing their busts and pictures, his attention was drawn to a fullness existing in the region of the head now allotted to this faculty. Following up the matter, he examined the heads of people known for uncommon credulity wherever they fell in his way, and finally concluded upon the location and function of this organ.

Socrates, as every classical scholar knows, believed that he was attended by a demon or spirit which served him as guide. Joan of Arc believed that she had communication with God through St. Michael, who appeared to her and made known His will in regard to France. Tasso often held conversations with familiar spirits as with companions of flesh and blood. Swedenborg says of himself: "In 1743 it pleased the Lord to manifest Himself to me, and appear personally before me to give me a knowledge of the spiritual world, and to place me in communication with angels and spirits, and this power has been continued with me till the present day." Swedenborg, according to his biographer, was a man of unquestionable sincerity, but one of the most extravagant enthusiasts that ever lived. The development of Marvelousness is very marked in this distinguished man. Napoleon believed in his star, or destiny, and set much store by "lucky" days.

It is unreasonable to suppose that in these cases, and in very many others which might be mentioned, these visions and supernatural appearances are mere vagaries of the imagination. They are as real to such individuals as hues and tints and the harmony of sounds are to the great majority of mankind, although, to be sure, there are some blind, who can form no idea of color, and some deaf, to whom music can have no charm. The explanation which Phrenology gives of these cases of preternatural impres-

sions is, that man is endowed with a mental organ which, in its normal activity, produces a love of the new and the wonderful, and disposes to a belief in the supersensuous, but which in its more exalted manifestation leads to belief in the actual presence of supernatural beings.

In the ancient Greek skull this organ is large, and we see its influence strongly marked in their works and liter-

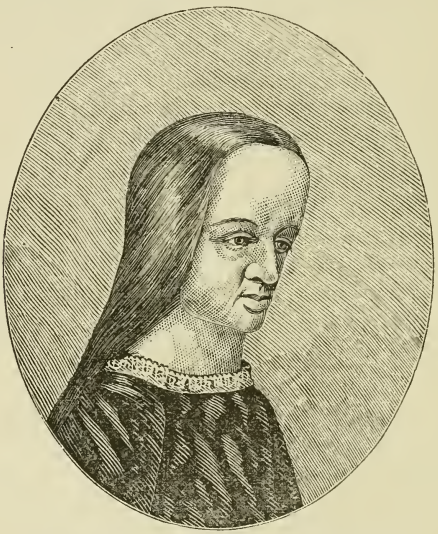


Fig. 83.—Ann Lee, founder of the "Shakers."

ature. It is extremely large in the skulls of the Peruvians, and they were exceedingly credulous, taking the Spaniards for supernatural beings. In the New Hollanders it is very small, and Captain Cook says of them, that when his ship went near the shore some natives were walking along, and though a ship under full sail must have been as strange a sight to them as a conveyance from the moon would be to

us, they hardly stopped an instant, but just glanced toward it and trudged on. In Fig. 57 the organ is small, and also in Fig. 87, where the entire head is low.

In the London Bedlam Mr. Combe examined the head of a patient in whom this organ was largely developed, and whose insanity consisted in seeing phantoms, and being led to act as if they were realities. When asked if he experienced any sensation in the head when afflicted with visions, the lunatic pointed to the situation of the organ of Marvelousness, and said that he felt an uneasy sensation there. In the Richmond Lunatic Asylum, at Dublin, he saw several patients in whom this organ predominated, and whose insanity consisted in believing themselves to be supernatural beings or inspired.

In the cabinet of the *Phrenological Journal* is a cast of the head of Mr. M., a jeweler of New Jersey, which exhibits an extraordinary development of Marvelousness. Mr. M. is by no means deficient in practical business acumen, yet he believes that he is visited by spirits and has friendly intercourse with them.

Persons who have exhibited extraordinary zeal in the propagation of some religious sect or doctrine, like De Sales, Loyola, Whitefield, or Jacob Boehem, or Ann Lee, show in their portraits a large endowment of Marvelousness, or Spirituality, as it is often otherwise called. In the casts or portraits of Thomas Paine, Voltaire, Cardinal de Retz, the organ is very deficient, and the quality of incredulousness was very conspicuous in their mental character.

### VENERATION.

This organ occupies a considerable portion of the upper frontal convolution, and is situated on the great longitudinal fissure near the middle of the coronal region, and di-

rectly in front of Firmness. This organ is covered in part by the superior portion of the frontal bone, and in part by the antero-superior angles of the parietal bones. On the lower side of it lie the organs of Hope and Marvelousness.

The function or office discharged by this organ is to produce the sentiment of reverence in general, and the disposition to worship a Supreme Being. It is blind or instinctive in its activity, giving a mere impulse to worship without distinguishing what objects are worthy of veneration, a matter that devolves upon the intellect. In all ages and in every tribe of people yet discovered,

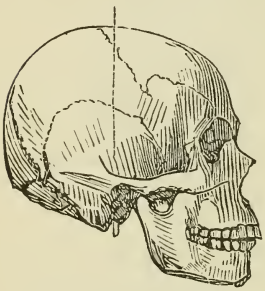


Fig. 84.—Tahitian Skull.

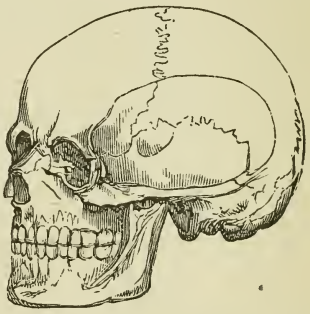


Fig. 85.—Greek Skull.

whether enlightened or barbarous, the disposition to worship has been manifested. Men have bowed down to beasts, reptiles, and images. They have worshiped the sun, the moon, genius or spirit in the storm; the air, the sea, and other deities innumerable; and from this universal tendency to worship, it would seem but a natural inference that the disposition to reverence a Superior Power is innate in the mental constitution. Yet Phrenology was the first system of mental philosophy to treat of veneration as an original power of mind. Other systems teach

that we acquire our impulses to worship through the perceptions of the understanding. We see all about us in the works of creation evidences of supernatural intelligence, power, and benevolence, and our intellects naturally infer that there must be a Being in whom these qualities reside, and who, as the Author of our existence, and our Benefactor, is worthy of our homage. But while concurring in the view, that from the intellect a powerful incentive to worship may be derived, it is clear that the disposition to worship in no manner depends upon the understanding; for the most ignorant and degraded peoples have manifested this sentiment most powerfully, although deficient in the intelligence necessary to direct it toward an object worthy of their devotion.

Veneration, however, is not confined to religion. It has a wide yet related sphere of activity in the affairs of human life, inducing respect for authority, deference toward superiors, and reverence for whatever is ancient, great, or good. Combined with large Love of Approbation, and moderate Conscientiousness and intellect, it leads the individual to pay court to persons of rank, title, and wealth. Where the intellect is not sufficiently enlightened, it may produce a bigoted respect for old customs and absurd institutions. It often presents an almost insurmountable obstacle to the reception of new truths by the great reverence which it inspires for the creeds, opinions, and theories in religion and science which bear the authority of great names and have endured for ages. "It seems to maintain the unenlightened devotee," says Mr. Combe, "in a state of bigoted subjection to his priests; an emotion of profound and sanctified respect springs up in the mind on contemplating the doctrines which they have instilled into him in his youth; and every suggestion of the

understanding, in opposition to this feeling, is expelled as profane. In short, Veneration, when vigorous and unenlightened, produces complete prostration of the mind before the object to which it is directed."

In another place, Mr. Combe says, very beautifully: "As Nature has implanted the organs of Veneration and Marvelousness in the brain, and the corresponding sentiments in the mind, it is a groundless terror to apprehend that religion can ever be extinguished, or even endangered, by the arguments or ridicule of the profane. Forms of



Fig. 86.—Veneration Large.

worship may change, and particular religious tenets may now be fashionable, and subsequently fall into decay; but while the human heart continues to beat, awe and veneration for the Divine Being will ever animate the soul; and the worshiper will cease to kneel, and the hymn of adoration to rise, only when the race of man becomes extinct."

"Nothing is more common in the hospitals for the insane," says Pinel, "than cases of alienation produced by devotional feelings excessively exalted, by conscientious scruples carried to prejudicial excesses, or by religious ter-

ror." Drs. Gall and Spurzheim saw in the hospital of Amsterdam a patient in whom the organ of Veneration was very largely developed, and who was tormented with the idea that he was compelled to sin, and that he could not possibly be saved.

A case very interesting in this connection and illustrating the instinctive and independent activity of the mental faculties, is related by Mr. Nelson Sizer in a Number of the *Phrenological Journal* for 1877. He was invited



Fig. 87.—Veneration Small.

to a jail in Massachusetts by a young lawyer to examine the head of a client of his whom he was to defend on a charge of stealing. The writer described the man as naturally religious, and at the same time naturally prone to theft. In reply to this description of his character, the prisoner said he was zealous in his attendance at prayer-meetings, and would take the opportunity of praying two or three times during the evening; and sometimes on the way home, the devotional feeling would come over him so

powerfully that he would kneel down in a corner of the fence and have a season of prayer. Yet before he reached home, if he saw a hoe lying near the road, or an old axe, or a beetle and wedge, or the pin of a cart neap, he would steal it, although knowing that he dare not carry it home, or sell it, or make any use of it whatever. He was sincere in his devotional feelings, and conscious of exalted enjoyment during his seasons of prayer, yet no sooner were these seasons over, and an opportunity presented itself of taking the property of another, than he seemed impelled by an irresistible impulse to gratify his thievish propensity.

### BENEVOLENCE.

The situation of this organ is in the anterior part of the top-head on the mesial line, directly in front of Veneration. When it is large the forehead rises high and with an arched appearance above the organ of Comparison, or center of the forehead; when small, the upper part of the forehead appears to incline or retreat.

It is this organ which inspires man with sympathy for those who are in circumstances of pain, sorrow, or distress, and imparts the disposition to relieve them. It goes out with pure and disinterested motives to the stranger, the forsaken, the poor, and the miserable, and forms the basis of that pleasure which men experience in efforts to alleviate suffering and to promote happiness.

It has the welfare of mankind in general as its object. Other faculties are the source of the love of family, friends, and objects in which our own personal interests center; but this faculty is universal in its application, embracing all men and all creatures capable of experiencing pleasure and pain. Its manifestation was beautifully expressed by Fénélon when he said: "I am a true French-

man, and love my country; but I love mankind better than my country." Poverty and distress of any kind are the natural stimulants of this organ. It induces liberality of sentiment toward all mankind, and a disposition to look charitably upon their shortcomings. It is self-sacrificing in its activity, leading the individual to set aside his own convenience when it would interfere with the comfort and happiness of others; to suppress peculiarities of temper and character, when these would give unnecessary pain;



Fig. 88.—Benevolence Large. Father Mathew.

to be mild and merciful in commands and censures; and to act toward all with a kindness and delicacy which is the distinguishing mark of an amiable, charitable, and polite disposition.

When powerfully active and unrestrained by the other faculties, Benevolence may lead to a generosity which impoverishes self and causes the individual to sacrifice his own interest unduly for the benefit of others. Goldsmith's

writings abound with sentiments expressive of sympathy and good-will for others, and in Goldsmith's head the organ was very large. Father Mathew, the distinguished temperance advocate, possessed a very strong development of it. So, too, our own poet Whittier has Benevolence very prominently indicated, and it is in entire correspondence with this mental development that his verse is pervaded with kindness and charity.

An Englishman by the name of Gosse was so largely endowed with this faculty that he could not resist any solicitation for alms, though in other respects he was a man of good sense and of some force of character. He gave away two fortunes for charitable objects, and, on inheriting a third, had a guardian placed over it that he might not give it away also.

Where this organ is deficient, a powerful restraining element is lacking in the mental organism, and as a result, the selfish propensities, if strong, may lead the individual into acts of cruelty and crime. In nearly all murderers, and in tribes of men remarkable for cruelty, this organ is small. In the representations which have been transmitted to us of the characters of history who are regarded as monsters of crime and wickedness it is very deficient.

A case of disease of this organ is mentioned by Dr. Gall in a patient who had manifested great benevolence of disposition previously to becoming insane, and then gave away all his clothes, leaving himself absolutely naked. He never ceased repeating that he wished to make every one happy, and he introduced into all his schemes of benevolence the Holy Trinity. The organs of Benevolence and Veneration in his head were extremely developed. Dr. Rush also mentions an idiot who, though manifesting no one mark of reason, possessed this faculty in so high a degree that he spent his whole life in acts of benevolence.

This faculty may often be distinguished in the lower animals. A respectable family living in Paris, related to Dr. Spurzheim that they had a horse and cow living in the same stable, and that on several occasions the horse, getting loose, went to the corner where the sack of oats stood, and drew it within reach of the cow, that she might partake with him of the good cheer. A clergyman of Dunlop relates a curious manifestation of this faculty by a flock of swallows. A nest containing four or five young swallows fell from its position to the window-sill below, without injury to any of its inmates. The clergyman placed the nest of young birds on a cut hedge and awaited results. "It was pleasing to see the young ones fed at proper inter-



Fig. 89.—Benevolence Small.

vals," he says, "and, at the same time, a great number of other swallows jointly and busily employed in building a new nest in the same place as the former; some of them bringing clay, straw, etc.; others making use of these materials; others dipping themselves into an open well, and plashing the walls of the nest; and all of them cheering one another to the useful work. In two hours the nest

was completely finished, and then the young ones were carried through the air under the wings of one, sometimes two, old swallows, and safely placed in their lodgings; after which the noise and cheering of the troop ceased."

Dr. Gall observed that in the horse this organ occupies the middle of the forehead, a little above the eyes. When this region is hollow and narrow, a horse is invariably vicious, and disposed to bite and kick. In mild and good-natured horses, on the contrary, this part is full and it appears to have considerable breadth.

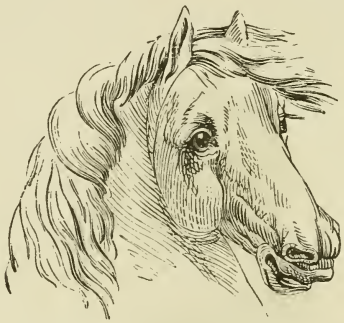


Fig. 90.—A Gentle Horse.

In dogs we discern wide variations of disposition; some, like the hound, St. Bernard, and colie, being amiable and kind; others, like the bull-dog and terrier, being ferocious or irritable and peevish. The intelligent pointer or St. Bernard is distinguished by a cranium which rises much above the eyes, and is well rounded and broad in the crown, while the bull-dog's head is flat, low, and very broad, the organ of Destructiveness being particularly developed. In the terrier we may find a well-developed crown, but the brain is wide in the base, Secretiveness and Destructiveness being conspicuous.

## ORGANS RECENTLY DEFINED AND PROBABLE.

Besides these organs which we have enumerated, there are four others marked upon the diagram which have not obtained the general acceptance of phrenologists, although the weight of testimony is in their favor. Most American observers, especially those who make Phrenology their profession, have accepted Human Nature, Agreeableness, Sublimity, and Conjugality as we place and define them; but European observers appear to hold them in doubt. It is due to say that American phrenologists have had the most to do in determining their localities and functions, and the authors of this volume deem them fairly demonstrated.

### HUMAN NATURE.

The designated location of this organ is in the upper anterior part of the forehead, on the central line between Comparison and Benevolence (Fig. 17–C). Its function is defined as that of impressing the mind with a knowledge of human character, supplying ability to read at a glance, in the countenance and manners of a person, his peculiar characteristics.

It must be conceded that the function which is ascribed to this organ appears to fall within the sphere of the combined activity of several other faculties, viz.: Causality, Comparison, Individuality, etc., for the reason that its impressions may accord with the inferences of perception, or the deductions of reflection. The mind, however, is subject to impressions and convictions practical enough in their application, but distinct, so far as can be ascertained, from the processes of the intellect. A faculty is therefore claimed which grasps truth in an instinctive or intuitive

manner. In support of this view, it is reasonably urged that the relations of man necessitate a faculty which shall furnish him with a judgment or impression independent of, or unbiased by, any emotion or sentiment which he may entertain toward the object of such judgment. Some people are remarkable for the accuracy of their judgment and the success of their operations in the business and social world, who have but a moderate development of intellect. When questioned upon the motives governing their gen-

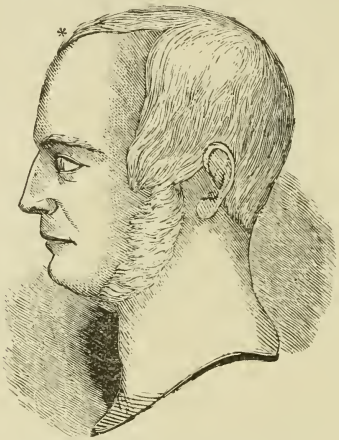


Fig. 91.—Human Nature Large.

eral conduct, they say that they follow the bent of their impressions; that they feel a certain security in obeying those impressions, but are unable to give a logical reason for their conduct. In the heads of these people the region between Benevolence and Comparison is usually prominent, while in people who depend upon their intellects for guidance in affairs, it is comparatively moderate in devel-

opment (see Fig. 95). In woman this region is generally more conspicuous than in man, and it is well known that the former are quicker in forming judgments than the latter.

AGREEABLENESS.

This organ has a large array of evidence for its location in the space marked D, Fig. 17, immediately above Caus-



Fig. 92.—AGREEABLENESS LARGE.

ality. It is said to give blandness and suavity to the manners; the disposition to make one's self agreeable and acceptable to others; the ability to ingratiate one's self readily into the favor and good-will of others, by adopting a

persuasive and conciliatory mode of address and pleasant manners.

The disposition to which this organ is thought to give rise, is supposed by some observers to result from a combination of Approbativeness, Secretiveness, Benevolence, and Veneration, but persons are often found who possess these organs well developed in association with a good intellect, yet are lacking in courtesy and the capacity to render themselves agreeable to others; they do not feel at ease in a mixed company, notwithstanding their good-will,



Fig. 93.—AGREEABLENESS SMALL.

deference, and desire to please. A little observation will satisfy one that the gallants and Beau Brummels of society are not generally those who are largely endowed with Benevolence, or Veneration, or Cautiousness, and may be weak intellectually, yet having Imitation large and the organ of Agreeableness, adapt themselves to the manners of their associates or to their surroundings with ease and grace. Modesty, amiability, deference, respect, kindness, may characterize the conduct of one; but without the faculty of Agreeableness, he will lack urbanity and grace.

Many persons whose intellectual culture and noble-heartedness command our respect, cause us much amusement by their awkwardness when in company. We notice great differences in the manner and bearing of children who have been nurtured amid similar associations. Some are naturally courteous, graceful, easy in movement and address, others are awkward, crude, maladroit. The basis of such differences, we think, exists in the degree of their development in the organ and faculty of Agreeableness.

### SUBLIMITY.

Like Human Nature and Agreeableness, the faculty or sentiment of Sublimity has been assigned to a separate or-

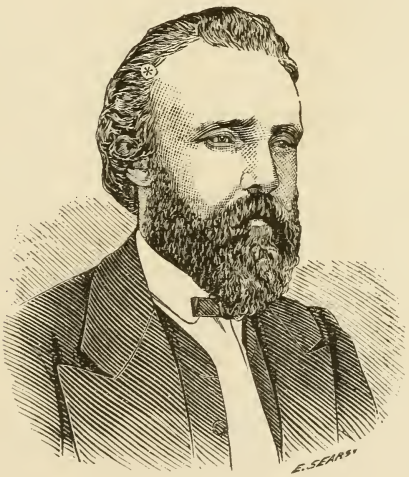


Fig. 94.—Sublimity Large.

gan by some of the later phrenologists. It is thought that the organ of Ideality, as defined by Spurzheim, Combe, and others of the last generation, comprehended too much

space in the brain, and mental qualities of a too widely different application; that while a faculty was properly deemed to exist having relation to the beautiful, picturesque, and delightful in nature, it was quite contrary to the bearing or sphere of such a faculty to ascribe to it the cognition of those conditions of nature which possess characteristics denoted by grandeur, majesty, sublimity, awfulness, and which in themselves are productive of essentially different emotions from those produced by what is called beautiful and æsthetic. In the one case we experience a thrill of pleasant attraction toward the object of our contemplation; in the other we feel a sense of dread, weakness, inferiority.

It is the province of Ideality to give taste, a love of the beautiful and the exquisite. Cautiousness inspires with the sentiment of fear, and it could scarcely be deemed improbable that between these two, an organ exists whose function partakes of the nature of each—the sentiment of the beautiful imbued with the sentiment of fear, which gives an appreciation of the grand, the awful, and the sublime. The beetling clift, the deep gorge, and the lofty peak of the mountain, and the cataract thundering over a rocky precipice, excite in some minds peculiar emotions which can scarcely be referred to a combination of faculties which are already known. Therefore, the posterior region of the space once assigned to Ideality has been appropriated to an organ of Sublimity with the function which has been indicated. (See Fig. 17–B). Artists like Albert Bierstadt, Doré, and Bradford, who are given to depicting the grandeur of nature in the deep, and terrible phases of human passion, have a strong development of this organ, and writers like Dante, and those of the Bulwer school exhibit it in predominant activity.

### CONJUGALITY.

This organ is located in the lower occipital region, directly above Amativeness, and on each side of Parental Love. (See Fig. 17–A). It has for its function the manifestation of the pairing instinct, or the disposition to choose a sexual mate, and to remain attached to that mate for life.

A strong argument in favor of the existence of this faculty in man is derived from the fact, that it appears to constitute a distinct faculty in some of the lower animals; and as all the other mental faculties displayed by the lower ani-



Fig. 95.—Skull with Large Conjugality.

mals form parts of the mental constitution of man, the presumption arises that he is endowed also with the mating instinct. The fact that any class of animals manifests a trait which another class does not evince, is a proof of the existence of that trait of character as a distinct and original power in the mind. The squirrel, for instance, stores up its winter's supply of provision in the fall, when it is abundant, and in this evinces the hoarding instinct, or Acquisitiveness. The horse, the cow, and the sheep, on the other hand, make no provision whatever for the future, but would trample underfoot to-day the surplus of food which

would be necessary to them to-morrow. Again, the beaver shows the constructive instinct in a remarkable degree, while our domestic animals never make the slightest attempt at construction; consequently, we infer that the disposition to build is a distinct and original power of mind. Now some animals choose a sexual mate, and remain firmly attached to that mate for life—as the lion, the eagle, and



Fig. 96.—Conjugality Large.

the dove. Our domestic animals, on the other hand, do not choose mates, but associate promiscuously. Those animals which mate, moreover, are as constant in their attachment throughout the year as they are during the procreative season, thus showing that their bond of union does not arise from Amativeness. It is thus logically inferred that Conjugality, or the disposition to choose a sexual mate, is a distinct mental faculty. And as man is endowed with

all the other faculties which are displayed by the lower animals, it is not unreasonable to suppose that Conjugality may constitute a distinct element in his mental constitution.

It is indeed asserted that the attachment between husband and wife may be referred to the combined activity of the organs of Amativeness and Adhesiveness; yet these faculties are possessed by the lower animals which mate



Fig. 97.—Conjugality Small.

and by those which do not, and if they are sufficient to produce the mating instinct in one class of animals, why are they not also in another?

In those persons who are distinguished for the singleness of their attachment to husband or wife, or for what is commonly termed uxoriousness, the organ is large. In the present Queen of England a fine illustration of Conjugality is observable, both in the persistence of her grief for the departed husband, and in the development of the head at the region assigned to the organ, as usually shown by the current portraits which display her head in profile.

# CHAPTER XI.

## HOW TO EXAMINE HEADS.

In the analysis of the mental faculties which we have just concluded, we have indicated the location, anatomically and otherwise, of the several organs. For the assistance of the student in his examination of the living head, we deem it fitting now to indicate a few points of departure by which the location of the organs may be ascertained.

The opening of the ear is taken as the general starting-point, and a line traced from that upward to the great *fontanelle* (or the place of common junction in the top-head of the two parietal bones with the frontal bone), which is usually indicated by some bony roughness or irregularity proceeding from the sutures, and at which, as we have seen, the organ of Veneration is located, will pass over in succession Destructiveness, the back part of Acquisitiveness, Sublimity, and Hope. Following the median line from the fontanelle forward, Benevolence and Human Nature are passed over; and then, in order as we proceed down the center of the forehead, Comparison and Eventuality—which occupy the middle of the forehead—and next Individuality, situated directly at the root of the nose. Taking now the superciliary ridge as our guide, the situation of the perceptive faculties respectively may be easily determined. Again, starting from Veneration, and following the middle line of the top-head backward, we pass over Firmness, Self-esteem, Inhabitiveness, and reach the occipital spine, at which Philoprogenitiveness is situ-

ated. Below this last organ we find Amativeness. Causality and Cautiousness are two organs whose location may be easily distinguished, the former being situated at the *frontal eminences* in the upper part of the forehead, on each side of Comparison, and the latter in the posterior side-head, at the centers of parietal ossification, or upward and a little backward from the ears. If a line be traced horizontally from Cautiousness to Causality, it will pass over in succession Sublimity, Ideality, and Mirthfulness. The space upon the top-head, between the organs on this line and those on the mesial line of the head, is occupied by another range of organs, viz.: Approbativeness, between Cautiousness and Self-esteem; Conscientiousness, between Firmness and the forward part of Cautiousness; and Hope, Marvelousness, Imitation, and Agreeableness, between Veneration and Benevolence on the one side, and Sublimity, Ideality, and Mirthfulness on the other. Another line traced from the center of Eventuality to a point in Philoprogenitiveness, just above the occipital spine, will pass over in succession Locality, Time, Tune, Constructiveness, Acquisitiveness, the upper part of Destructiveness Combativeness, and the lower margin of Friendship. Secretiveness lies between Cautiousness and Destructiveness, and back of Acquisitiveness. The locations of Vitativeness, Destructiveness, Alimentiveness, and some of the organs just named, may be easily determined from their relation to the ear. The diagram, Fig. 17, may be referred to as a guide in tracing their relative situation, it being remembered that in attempting to represent upon a plane surface the position of organs occupying places in a spheroidal or convex mass, much apparent irregularity must result. The student should fix in mind the locations on the cranium of the anterior and posterior fontanelles, the mas-

toid processes, occipital spine, parietal eminences, frontal eminences, superciliary ridges, and zygomatic arches, and observe the relation which certain organs bear to them respectively; he will thus be greatly assisted in determining the location of the others and their degree of development.

A good phrenological bust, having the organs marked on one side, and the different regions of the brain on the other, will be found an almost indispensable adjuvant, since the organs differ in form and extent, and these qualities can be best indicated on a bust.

*An Illustration.*—Given a subject, the first matter to be considered in estimating character from external forms is the general size of the head. The fundamental principle that size, other things being equal, is the measure of power, demands attention; for while it is of the greatest importance to consider well the conditions which modify the effect of size, we may rest assured that a large brain is an indispensable requisite to great mental power. On the other hand, although keenness and even brilliancy of mind may result from the great activity of a brain of moderate volume, yet it will fail to manifest that power and force which give to the large brain its commanding influence in society. Men of large brain readily impress us with their power. The comprehensiveness of their minds, and the ease with which they can sustain large responsi bilities, inspire us with confidence, and we almost instinctively accord to them positions of influence and authority. There appears to be little difference of opinion now among observers with respect to the importance of a large brain. That sharp critic in mental philosophy, Alexander Bain, writes:

"It can not be maintained that size is the only circum-

stance that determines the amount of mental force; quality is as important as quantity, whether in nerve, muscle, or any other portion of the human structure. But just as largeness of muscle gives greater strength of body as a general rule, so largeness of brain gives greater vigor of mental impulse."*

Dr. Delaunay, an eminent French physiologist, says in a recent paper: "Bismarck and Moltke measure more around the crown than the Emperor William. Inferior races have smaller heads than Europeans." In our intercourse with men of small brain, on the other hand, the want of commanding force of character will be felt. They may possess talent in some respect which will excite our admiration, and we may defer to their judgment in matters which lie within the range of their special talent, but they rarely impress us with confidence in their capability as leaders and directors of affairs of importance.

The size of the body, also, should be taken into the account in estimating the general power of the mind. Into this the matter of Temperament necessarily enters, as has been shown in the chapter "On the Temperaments," and the proportion of the mental, motive, and vital elements in the organism should be carefully estimated. The body is the source whence the brain is nourished, and if it be feeble or exhausted, it must fail to sustain properly the brain in its activity, and the mental manifestations are fitful and weak in consequence. The premature decay of many men of brilliant intellect lies just in this want of balance between the physical and the mental powers. Their proneness to mental activity causes the brain to consume the vitality of the body faster than the organs of nutrition can

* "The Senses and the Intellect," p. 11.

supply, and the result is premature exhaustion and decay of the system. Here the phrenologist has a most useful office to perform, in giving advice on the subject of physical culture, that men may correct abuses or improprieties in their every-day life, and acquire that bodily soundness which is essential to mental integrity.



Fig. 98.—Gen. Negley.

## QUALITY, ITS NATURE AND INFLUENCE.

Having observed the general size of the head, the next point to be considered is the Quality of the organization, the chief influence which modifies the effect of mere size.

Some phrenologists of eminence regard this as mainly a matter of temperament, and treat it as the resultant or *co*

*semble* of the Vital, Motive, and Mental temperaments Even Mr. Combe confounds it with the temperaments at times. We can not, however, thus consider Quality; for in our experience it assumes a relation much closer to the personal life—to the individual entity—than that occupied by the mere physiology. It is certainly exhibited by and

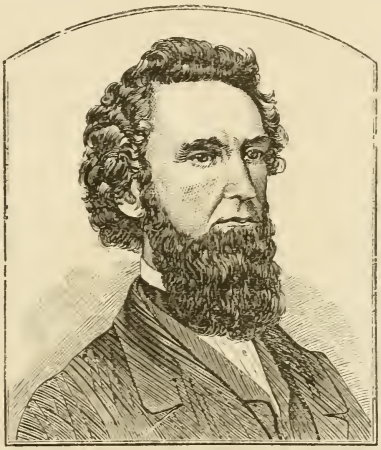


Fig. 93.—Motive Temperament, Fine Quality.

through the material organization, but is something behind or fundamental to, organization. It declares the inner nature, the inherited constitutional texture or calibre of the man or woman, and according to its degree of refinement contributes to his capability of culture, his facultative readiness and adaptation. Habit and training may modify temperament to the extent of even changing entirely the original combination. A studious, reflective life may render the Mental element, once subordinate in its physical expression to the Motive or Vital, superior to both, and

an out-of-door mechanical life may develop into predominance the Motive element, which before was less strongly expressed than the Mental or Vital. An organization like that represented by Fig. 98, in which the balance of temperament is nearly perfect, would, under conditions like those just indicated, show in time a predominance of the temperament whose development had been specially promoted. But the Quality is not readily susceptible to training or habit; it rather gives tone and direction to a person's mental life—to his habit and pursuit, and indicates itself in the manner, the thought, the language. In substantial agreement with this view we find Mr. O. S. Fowler thus emphatically declaring himself:

"*Hereditary organic Quality* is the first, basilar and all-potent condition of all power or function, all happiness, all everything. This is congenital—is imparted by the parentage along with life itself, of which it is the paramount condition and instrumentality. It depends mainly on the original nature of the parents, yet partly also on their existing states of body, mind, and health, their mutual love or want of it, and on other like *primal*, life conditions and causes. It lies behind and below, and is infinitely more potential than education, and all associations and surrounding circumstances. . . . .

"This condition can not well be described, hardly engraved, but it is easily perceived by a practiced eye. It is quite analogous to temperament, on which little has yet been written, but lies behind and below all temperaments is, indeed, their determining cause."*

A much later utterance is that of Mr. Nicholas Morgan, in a late work, viz.: "Quality of brain is likewise a measure of power. This fact has forced itself on the attention

* "Self-Instructor in Phrenology and Physiology," p. 11.

of medico-psychologists; and few, if any, would attempt to gainsay it. Persons having heads of like size and form do not possess equal mental power if the Quality of their brains be dissimilar. In fact, small-headed individuals, in consequence of having brains of finer texture, are often observed to far outstrip others in power of mind whose heads are much larger." *

It will not serve to refer high Quality to the Mental temperament, as some are inclined to do, since we find great

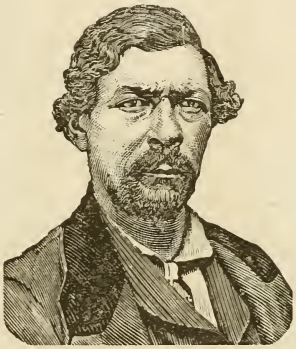


Fig. 100.—Motive Temperament, Low Quality.

differences among individuals alike characterized by a predominance of the Mental temperament, differences in texture, activity, apprehension, in everything, in fact, which relates to mentality. Again, if the Mental temperament lay at the basis of Quality, how is it that we sometimes find persons in whom the Motive temperament predominates, who, nevertheless, impress us by their fineness of organic fiber, by their Quality, and who evince superiority in al-

* "The Skull and Brain," p. 131.

most every way to others in whom the Mental temperament is evidently strongest? In Figs. 99 and 100 we have two phases of the Motive temperament, both indicating it as predominant in the physiology, but observe the marked difference in its expression; in Fig. 100 it appears rudely

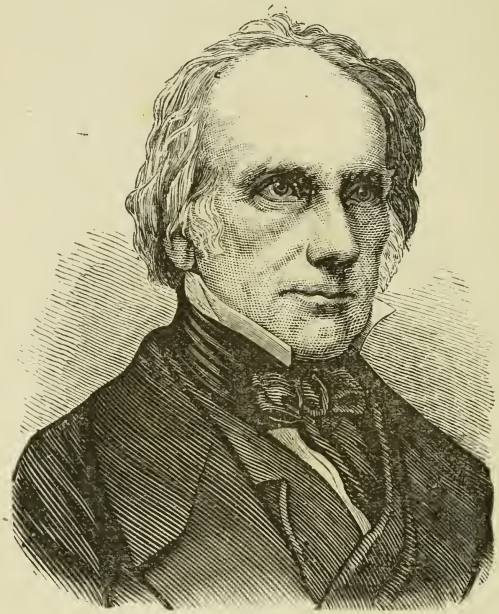


Fig. 101.—Henry Clay.

and coarsely defined, evincing a low order of mentality, a mean, boorish origin. In Fig. 99 it is associated with refinement and delicacy, at once impressing the observer with the thought: This man comes of good stock, and is highly bred.

We know that a balance of the temperaments is contrib-

utory to the best results in human endeavor, and wherever such a balance occurs, if Quality proceeds from temperamental combination, we should look for the highest order of Quality, but we do not find such an association to be the rule by any means. Cases of temperamental balance

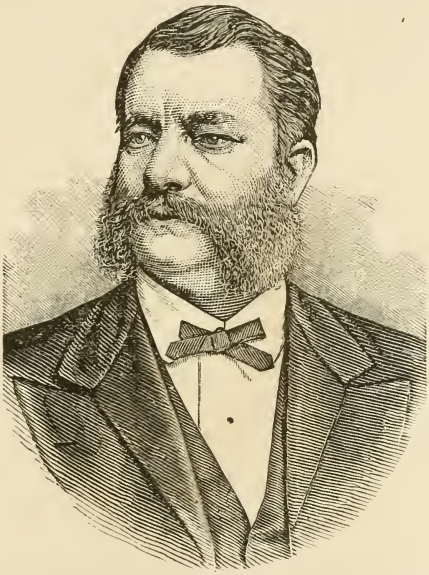


Fig. 102.—Gen. G——.

are rare, yet, when found, exhibit wide variations in degree of mental capacity and constitutional refinement. See Figs. 101 and 102, for examples of well-balanced temperament, with differences in Quality.

In the endeavor to form a comparative estimate of Quality we consider the texture of the skin, the clearness of the eyes, the character of the hair, the symmetry and harmony

of the different parts of the body, the tone and bearing. A high endowment of this native family element is denoted by a pervading fineness of fiber, with elasticity, both mental and physical, ease of cerebral action, directness and facility in adapting one's powers to the work in hand. It also exhibits itself in the spirit or animation which characterize one's conduct in quick response to impressions. Given two persons with a similar physical structure, he who possesses the higher grade of Quality will show a



Fig. 103.—Grace Greenwood.

smoother, softer outline, a more subtle, elastic movement, a superior refinement of the features. The difference may not be appreciable by line and square; but the eye, especially if trained, will take note of it at once, and the judgment instinctively ascribe to him a higher grade of mental capacity. In the portraits of the Adamses, from John to Charles Francis, we discern the markings of a fine Quality upon a temperament eminently Motive. We see them also in the portrait and bust of Henry Clay. Fig. 99,

as we have seen, shows the Motive influenced by a high Quality. How the Vital temperament may be refined by Quality is notable in the accompanying portrait of Mrs. Lippincott (Grace Greenwood). Variations of this peculiar element in the Mental Temperament may be observed in Fig. 104 and in Fig. 105.

Of the Temperaments we have spoken at some length in a former chapter and to that we refer the student for the



Fig. 104.—C. KINGSLEY.

consideration of their modifying influence upon the mental organs. A knowledge of the characteristic expression of each is essential to the observer of Mind if he would form accurate conclusions with respect to any special case. He should ascertain whether the Mental, or the Motive, or the Vital element predominates in the organization before proceeding to consider the cerebral organs, and should bear in mind from first to last the nature of their combination and interrelations.

Two heads may be molded exactly alike, yet the strength of the mental manifestations, owing to the Quality and temperamental influence, may differ as greatly as the oak differs from the palmetto.



Fig. 105.—Mr. Chamberlain.

"The brain," the author of "The Temperaments" says, "takes its form and quality from the intelligence which creates and makes use of it, and the body is modeled after the pattern set by the brain. . . . . The bodily habit is the outgrowth of a spiritual condition."*

* "The Temperaments; or, The Varieties of Physical Constitution in Man." D. H. Jacques, M.D. Page 33.

REGIONAL DEVELOPMENT.

In the observation of the organs, it will be of advantage to the student to confine his attention at first to estimating the relative size of the different regions of the brain. Keeping in mind the fact that the size of the organs is in general measured by the distance from the *medulla oblongata*, and that a line drawn through the openings of the ears will nearly intersect this point, we are able to estimate with

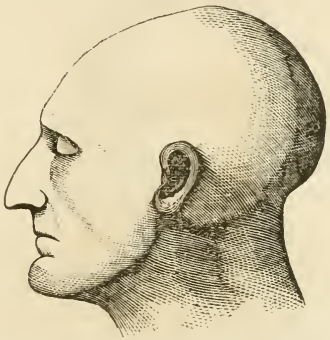


Fig. 106.—Large Perceptive Organs.

sufficient accuracy the size of an organ or any region of the brain by the distance from the opening of the ear to the surface of the skull.

The extent of the Intellectual organs in general is measured by the projection of the forehead from a line drawn vertically upward from a point on the zygoma just in front of the ear. Men of great intellects invariably have foreheads which project well over the orbits of the eyes, besides showing breadth and fullness in other directions. Napoleon's forehead was remarkable for its projection and

size, and Dr. Gall, from merely seeing his bust placed alongside those of the Austrian Generals, predicted the marvelous successes over them which he afterward achieved.

In the forehead, as we have seen, are located two classes of organs—the *Perceptives* and the *Reflectives*—which frequently differ much in size. If the lower portion projects well over the eyes, and the forehead slopes rapidly back-



Fig. 107.—Large Reflectives.

ward from the eyebrows, the Perceptives will be large and the Reflectives small. Such a cast of forehead as that shown in Fig. 106 indicates an observing, practical order of mind, one which readily perceives the qualities and simpler relations of objects. If the upper portion of the forehead be prominent, and the parts over the eyes be comparatively flat and narrow, the organs of Reflection will be large, and those of Observation small. The individual

possessed of such a form of head will be a thinker rather than an observer. He will be disposed to theorize, and to reflect upon the causes and more remote relations of things, rather than to deal with the things themselves. He will be good at conceiving plans, but will be wanting in practical ability to carry them into execution. Where these two regions are harmoniously developed, the forehead falls back but a little from the perpendicular. Planning and theorizing talent will then be united with observing and practical talent, and the intellect will be well balanced, the



Fig. 108.—LARGE MORAL DEVELOPMENT.

Perceptive faculties ministering actively to the Reflective, and the latter effectively organizing the material of observation into forms of practical usefulness for one's self and others.

The Moral organs being situated at the top of the head, their development will be indicated in general by the height of the head above the ears. Elevation and breadth in this region of the brain are indicative of morality and rectitude of character, and a disposition to worship a Supreme Being, to manifest faith in the unseen and spiritual, and to practice the precepts of truth and duty. (Fig. 108).

A head high in the crown, upward and backward from the ears, indicates a large development of the organs relating to personal aspiration, and a character marked by stability, pride, self-reliance, independence, and love of distinction. (Fig. 109).

The Social region of the brain is measured by the fullness of the head behind the ears. One well developed in this part indicates a fraternal, friendly, sociable disposition, and a character marked by love of country, home, friends, and family.



Fig. 109.—Large Coronal Organs.

If the head be broad above and around the ears, the group of the selfish propensities will be largely developed, and the individual will be characterized by great energy and force of character, and by courage, prudence, policy, economy, and executive ability. (Fig. 110).

In estimating the influence which any one of these regions has upon the character, it should be borne in mind that it is its size as compared with the other regions, rather than its absolute size, by which its influence is to be measured. Two heads, for instance, may measure exactly the same in circumference, breadth, length, anterior projection,

and occipital extension, yet if one be three-quarters of an inch higher than the other in the region of the moral sentiments, the characters will be very dissimilar. The high head will manifest a disposition in which the virtues will have a most important influence in keeping the selfish and animal propensities under due control. In the low head the selfish propensities, although in reality no more powerful in degree than the same faculties in the higher head, yet lacking the restraining influence which it is the function of the moral sentiments to exert, will lead the individual into



Fig. 110.—Large Executive Organs.

excessive gratification of his lower nature. As the largest organs have the strongest tendency to activity, the character of an individual will take its direction from the class of organs which predominates in his brain. If the anterior portion of the brain is in the ascendency, it may be inferred that the tendency of the individual's mind will be toward pursuits of an intellectual character. If the head be very high in proportion to its size in other parts, the natural bent of the mind will be toward the expression of high morality and religious sentiment. If the head be

very broad at the base and lack proportionate height, coronal fullness, and anterior length, the individual will be prone to low pursuits in which his animal propensities may find their gratification.

Prof. F. J. V. Broussais, in his instructions to his classes, for the purpose of facilitating their observation of cranial form, defined nine classes of heads, viz.: (1) those with predominant propensities and weak intellect and sentiments; (2) those in which the sentiments rule over the other organs; (3) those in which the intellectual faculties, as a whole, predominate; (4) those in which the perceptive faculties are in excess over the reflective; (5) those in which the faculties called theatrical—which conduce to mimic talent, as Imitation, Marvelousness, and Ideality—have the ascendency; (6) those in which the theatrical or histrionic faculties are associated with a finely developed intellect and the higher sentiments; (7) those heads which are notable for moderate size and generally moderate development; (8) those of moderate size, with an organ or two strongly predominant; (9) those in which the faculties are all developed in the highest degree—a class mainly hypothetical or ideal.*

### DETERMINATION OF SPECIAL ORGANIC INFLUENCE.

After the beginner has acquired some facility in estimating the proportions of the different regions of the brain, he may then begin to make observations on the individual organs. As the predominating region of the brain imparts to the mind its peculiar bent, so the largest organ in any region will be the controlling organ of its group. If, for

* Cours de Phrenologie. Par F. J. V. Broussais, Membre de l'Institut, Officier de la Legion d'Honneur, Professeur a la Faculté de Medecine de Paris, etc. Paris, 1836

instance, among the moral sentiments, Veneration is prominently marked, while the other moral organs are inferior, the character will be marked by a disposition to seek the society of the devout, and to unite with some religious body. The man will be attentive to the external forms and ceremonies of religion, but will be likely to fail in the practice of the precepts which enjoin justice, charity, and good-will in our relations with men. If Conscientiousness be the predominant organ, he will be more upright than devotional, more just and conscientious than kind, charitable, and benevolent.

If, among the regions of the brain, the Propensities are the most developed and Combativeness hold the predominant sway among them, the individual will be naturally prone to quarrels, contentions, and brawls, and to seek opportunities for gratifying this propensity both by personal encounters and by witnessing combats between brutes and between men. If Alimentiveness be developed in excess of other strong propensities, a tendency to gluttony will be the predominant trait. If Acquisitiveness be in the ascendency, the native bent of the mind will be toward money-getting, saving, and hoarding.

The same law holds good of the organs in the anterior region of the brain. If Language be prominent, while the general intellect is not large, the individual will be characterized by garrulity. He will be constantly talking, yet his conversation will be about trifles; according to his education he will abound in words, yet be wanting in ideas. If Constructiveness be in excess, the mind will run toward mechanism, and whatever intellectual power he may possess will be employed chiefly in the line of mechanics. The style of an author in whose head Comparison is predominant, will abound in simile and metaphor. If Event-

uality be the most prominent, he will excel in describing action and events. If Individuality be in excess of the other intellectuals, he will treat his subjects chiefly by describing their qualities and features; while predominant Causality will render his style abstruse and theoretical.

# CHAPTER XII.

## HOW CHARACTER IS MANIFESTED.

### THE COMBINATION OF ORGANS AND FACULTIES.

THE many faculties which enter into the composition of the human mind, afford a boundless scope for diversity in combination; and as the operation of each faculty is modified by its relation to others, it is important, in the application of the science, to understand how the faculties combine in the production of character. The many tints in the rainbow result from the combination, in different proportions, of only three primary colors. But there are upward of forty primary faculties which enter into the composition of the human mind, so that we can form some conception of the reason for the unlimited variety in disposition and talent which are observable among men. From the three simple elements in the rainbow—blue, yellow, and red—it is not difficult to form the four intermediary colors which result from their combination; but when we depart from these fundamental colors it is found difficult to estimate their exact proportions in the composition of any given tint. So, in judging character, it may not be difficult to trace out the combinations of a few elements in the production of common and prominent characteristics; but to estimate correctly the relative proportions of the primitive mental faculties in minute shades of character, requires a skill born of long practice and extensive observation. The student's own judgment and power of discrimination, aided by practice, must be his chief reliance in estimating the extent to which character

is modified by the combination of its primitive elements. A few observations, however, may be made on this branch of the subject, which will be of service to the beginner, and which will serve to illustrate its importance.

In the early part of Dr. Gall's investigations with respect to the functions of different parts of the brain, he observed that a prominence in the temporal region, a little upward and forward from the ear, invariably accompanied a thievish disposition, and supposing then that this part of the brain and this trait of character bore the relation to each other of organ and function, he named it the Organ of Theft. Further observation, however, proved to him that this idea was erroneous, and that the primary function of this portion of the brain was to give the desire to acquire and possess, and that it leads to theft only in combination with small Conscientiousness (which, when fully developed, imparts a due regard for the rights of others), and with large Secretiveness, which gives the disposition to work slyly and covertly.

Large Approbativeness impresses an instinctive craving for praise and esteem. In combination with large moral organs it inspires a worthy ambition to be esteemed for the sake of moral excellence: honesty, kindness, and purity of character. In conjunction with large intellectual faculties, it will lead one to aspire after excellence in science, art, or literature, according to the particular cast of intellect. Combined with strong propensities and an inferior intellectual and moral development, it will give one ambition to obtain notoriety in vicious or brutal indulgences, as being the biggest eater, the best fighter, or even the greatest libertine in the community; these tendencies being shown according as Alimentiveness, or Combativeness, or Amativeness shall predominate.

Large Cautiousness, with little Hope, inclines one to melancholy and gloomy foreboding. Add large Destructiveness to this association, and we have the combination usually existing in the suicide. Large Hope with small Cautiousness imparts a joyous, happy, and careless disposition. If large Combativeness be added, there will be rashness, precipitancy, and indifference to consequences, unless the intellect be powerful enough to counteract the tendency of this combination of sentiment and propensity.

Large Firmness and Self-esteem, associated, and in predominating activity, render an individual headstrong, and set in his own way. He can be neither coaxed nor driven, but must have his own way in everything. If, however, some one of the social organs be prominently developed, he may be approached and influenced through it. It then becomes the open door through which wife, children, or friends may enter and cause the stubborn will to yield. Large Self-esteem combined with a moderate intellectua, and moral development renders the individual proud, haughty, and domineering. With the latter classes of faculties duly active, it will give dignity, independence, and a becoming sense of what is due to one's own personal worth. When Self-esteem is small and Approbativeness and Cautiousness large, the person will show diffidence in manner, and a sensitive regard to what others may say and think of him; will entertain a dread of giving offense, and if his intellect be weak, he may be a timid slave for the uses of unprincipled associates. If there be large Conscientiousness, Cautiousness, Approbativeness, and Benevolence, with small Self-esteem, one will be liable to continual annoyance, imposition, and injustice. He will give just weight and full measure, yet hesitate to exact the same in return. He will

abound in neighborly and generous deeds, yet will suffer much inconvenience through fear of trespassing upon the rights or feelings of others. Such a combination of faculties renders an individual the easy prey of the unprincipled. If his position in life be easy, they flock to him and seek favors from him with fair speech and oily tongue, and he is powerless to resist their solicitations. His large Conscientiousness and Benevolence dispose him to believe them honest, and to judge them with leniency; his large Cautiousness and Approbativeness make him fearful to show the slightest distrust in their integrity, lest he may incur their displeasure; and from deficient Self-esteem he fails to perceive the indignity in their conduct toward him.

Large Secretiveness, combined with deficient Conscientiousness and Benevolence, inclines one to habits in which duplicity, cunning, and deceit are characteristic. Add to this combination large Approbativeness, and we have the human snake in the grass—one who is specious and fair to the face, but treacherous in the dark. Add to these a considerable endowment of Ideality and a good intellect, and we have the intriguing seeker after notoriety and popular applause; him who attains his purpose through trickery and plausibility.

These observations on the combinations of the propensities and sentiments, and their resultant manifestations in the mental life, as we recognize them among men, might be extended indefinitely. But enough, we think, has been said to give the beginner a practical idea of the manner in which the different propensities and sentiments operate in association. An intimate acquaintance with the individual functions of the different organs and the practice obtained by personal investigation must be his chief reliance in

tracing out the combinations lying back of the great variety of phases of character which he will meet.

### ORGANIZATION AND PURSUIT.

As disposition is dependent upon the differential influence of propensity and sentiment, so talent is dependent upon the intellectual faculties; and as success in the different vocations of life is dependent chiefly upon the



Fig. 111.—Good Mechanical Abilities.

knowing faculties, it is most useful to understand how the intellectual faculties combine in the formation of talents for different pursuits.

*The Mechanic* in general should have a good endowment of the observing faculties, which is indicated by breadth and prominence of the lower portion of the forehead; especially should the organs of Form, Size, Weight, and Or-

der be well developed to give him a just idea of proportion, and to make him neat and systematic in his work. Large Constructiveness is essential to give him facility in the use of tools; Imitation, to enable him to work after models; and Ideality, to give taste and artistic symmetry



Fig. 112.—The Business Manager.

to his work. Causality added to this combination, makes the inventor. A person once presented himself for examination to a phrenologist, and was described by him as capable of excelling in the field of mechanical invention, the opinion being based upon his very strong Causality,

Constructiveness, and Ideality. After the examination was finished, the young man remarked, in corroboration of the deductions of the phrenologist, that he had already brought out twenty-two inventions, although not yet twenty-two years of age.

*The Surveyor.*—The combination of faculties essential to the surveyor is large Individuality, Form, Size, Calculation, and Locality. The engineer needs besides these, Constructiveness and a good endowment of Causality.

*The Business Man.* — Individuality, Eventuality, and Comparison confer talent for practical business, by the power which they supply for attending to the details of any subject. Causality gives planning talent, and the ability to take in far-reaching conditions, and should be added to the foregoing to constitute a successful manager of a large business. Order and Number are also essential to give system and ready calculation, and a good endowment of Acquisitiveness to give an appreciation of economy and of the value of property.

*The Artist.*—In the realm of art a high order of Quality is the first requisite. Individuality is essential to give attention to details; Form and Size to a perception of shape, proportion, and perspective. Weight is essential to the sculptor, to enable him to give a natural pose to his figures, as well as to proportion the force of his blows to the effect which he wishes to produce upon the marble. Color and Locality are essential to the landscape painter, to enable him to appreciate the relations of tints and the laws of perspective.

Comparison is essential to critical ability and discrimination; Constructiveness to manual expertness; Imitation to copying talent; and Ideality to taste and a sense of the beautiful.

As an interesting example of the dependence of talent on cerebral development, as well as of the facility which may be acquired in reading character from external forms, the following sketch is cited:

"About 1858 the author was invited to a house in New York, to make a few examinations. He was requested to call at a particular street and number, and ask for a certain name. A few persons were collected, but the names were not mentioned. In the examination and description of one gentleman, we described him as being artistically inclined, but deficient in Color; he would be more likely to work at steel engraving, or crayon, or marble than in colors. There being an oil-painting and a crayon picture hanging in the room, of about the same size and apparent value, we said, by way of illustration, that if those two pictures were on sale at auction, he would bid forty dollars for the crayon, and only twenty for the oil-painting.

"The next man who took the seat for examination was described, among other things, to be very fond of art, but more particularly fond of colors, and the two pictures were again used as illustrations, by saying that if they were for sale at auction, he would bid forty dollars—the full value—for the oil-painting, and only twenty dollars—or half its value—for the crayon picture. When the examinations for the evening were closed, we were introduced to the gentlemen by name—the first being the great crayon artist of New York, Mr. Rouse, who made the crayon picture, and the other, Mr. Church, of 'Niagara' fame, who had really painted the picture in oil before us. We were then taken into the parlor and shown the original study of the 'Falls of Niagara,' by Mr. Church."*

*The Musician.*—In musical talent a large organ of Tune

* "How to Teach." Nelson Sizer.

is, of course, the first essential; Time is also necessary, to give a just perception of intervals; Form, to supply ability to read music readily; Weight, to proportion the force with which the chords should be struck to the loudness of the tone which it is desired to produce; Constructiveness, to impart manual expertness, and Ideality to give taste and exquisiteness to the performance.

*The Writer.*—In literary talent a large organ of Language is essential, combined with Individuality to give point and definiteness to the expression, Eventuality to supply memory, Comparison to give critical ability, and Ideality to give taste and refinement.

*The Physicist.*—A large perceptive development is in general necessary to a talent for the natural sciences, since these sciences consist chiefly in a knowledge of the existence, the appearances, and properties of natural objects. A good endowment of the reflective organs is essential to trace out the principles and the more remote connections and dependencies of these objects; but we frequently meet with men eminent for scientific attainments in whose heads the knowing organs much predominate, the reflectives being only moderately indicated.

The careful observer will notice that the local development of organs is influenced by their tendencies of association. The strongest organ of a group will so influence the growth of the other members of the group, that they will indicate a tendency of approach toward it. Thus, predominant Firmness attracts Self-esteem, Veneration, Conscientiousness, Approbativeness, Hope, and other neighboring organs so that the head, in some cases, will appear to be massed in that region. Or Acquisitiveness, when very active and large, will attract Ideality, Constructiveness, Time, Calculation, Causality, and others, and will

render them contributory to its operation. As a general rule, organs associated in mental activity grow toward each other, and in extraordinary cases, this growth is so considerable that an organ may appear to be quite out of its normal situation. The semi-intellectual organs exhibit much



Fig. 113.—The Scientist.—Dr. R.

variation in this respect. When closely allied in activity with the perceptive faculties, they appear to be drawn forward and downward. When working with the reflectives, their direction of growth is forward. While in close sympathy with the moral sentiments, they show an upward

tendency. If, however, they co-operate mainly with the physical forces, the growth takes a downward course. Some writers who have noticed this characteristic of brain development and deduced composite mental qualities, have sought to subdivide some of the organs, assigning to their front, back, and side parts, functions of an intermediate



Fig 114.—The Artist—Delaroche.

class. For instance, Prof. L. N. Fowler divides most of the large organs into three sections. Veneration, in his scheme, consists of Worship, with an anterior division defined as Respect, and a posterior division entitled Antiquity; Acquisitiveness is made up of Acquiring, Saving, and Hoarding; Ideality, of Expansiveness, Refinement

and Perfection; Friendship, of Gregariousness, Love of Family, Sociability; Alimentiveness, of Desire for Liquids, and Desire for Solids; Comparison, of Criticism and Comparison.*

*Practical Importance of the Propensities.*—In these remarks on the combinations of intellectual faculties it should be borne in mind that the propensities and sentiments exercise a very important influence in the manifestation of talent. Many persons having the intellectual qualifications which would enable them to take a leading position in almost any pursuit, occupy an inferior station from lack of energy and force of character, qualities conferred by large Combativeness and Destructiveness. Others whose talents are excellent, fail to accomplish results in proportion to their talent, through constitutional sensitiveness and diffidence, the effect of small Self-esteem in association with large Cautiousness and Approbativeness. Others, again, abuse intellectual gifts of a very high order by perverting them to base and immoral purposes, a weak endowment of moral sentiment failing to restrain their active and powerful propensities. The intellectual organs which give a talent for drawing and painting may be perverted by powerful Amativeness and a generally low organization, to the representation of lewd and immoral pictures; or from the predominant activity of the higher sentiments, the artistic talent may be directed to the purest and loftiest conceptions of art. In Buonarroti, Delacroix, Da Vinci, Delaroche, and other eminent artists whose best works are of a religious type, the great moral development of their heads is at once noticed.

* See L. N. Fowler's Bust of Phrenology.

RELATIVE IMPORTANCE OF THE FACULTIES.

Every mental faculty has its legitimate sphere of activity and is essential in adapting man to his relations and surroundings in the present life. If any organ be deficient in the brain, the mind in that particular will be wanting in the completeness of its manifestation. But some organs are much more important than others in the influence which they exert over the life and conduct of the individual. Color, for instance, may be entirely wanting, yet the person be well qualified to win success in vocations where a capacity to judge of hue and tint is not required; or he may be deficient in the organ of Tune, and yet have excellent capacity for a wide sphere of usefulness. If, however, the organ of Cautiousness be very small, there will be a lack of prudence and forethought which will extend to every department of the individual's activity, and prove a serious hindrance to his success in any independent vocation. Or, if Firmness be wanting, vacillation will characterize the individual in all his affairs, and prevent him from accomplishing results which in other respects he may be admirably fitted to achieve. On the other hand, as every organ tends to activity with a degree of energy proportioned to its size, if one be developed much in excess of all the others, it will give a bias to the mind which it will be difficult to correct. An intellectual organ may be possessed in a very large degree, and seek its gratification to the fullest extent without detriment to the individual or the community; but an exceedingly large organ of propensity or sentiment will warp the character, and may prove a serious impediment to the success and happiness of the individual. Bidder and Colburn, through very large organs of Number, while yet mere children, aston-

ished the world by their mathematical calculations. Mozart's greatly developed Tune sought its gratification, at a very early age, in musical composition, and in after years delighted the world with divine symphonies. We look upon these men in wonder, and admire their genius. But had this excessive development been in the region of propensity, at Amativeness or Alimentiveness, for instance, we would have been disgusted with their exhibitions of sensuality or gluttony. Or had these intellectual organs changed places with the sentiments of Hope or Benevolence, we would have pitied them for the failure and misery brought upon themselves and others through excessive hopefulness and generosity.

Thus, when any mental organ is greatly predominant or deficient, the result is necessarily a departure from harmony in the mental manifestations, and from symmetry of character.

But some faculties are higher in authority than others, and are naturally fitted to be the guiding and controlling powers of the mind. Hence a mind well constituted to cope with the existing conditions of human life should possess these powers a little in excess of the inferior or ancillary faculties, so as to enable them to exercise the habitual supremacy which is necessary to regulate properly the moral and secular life.

The careful reader of the preceding chapters will need but little reflection to determine for himself what organs should be the stronger for this purpose.

# CHAPTER XIII.

## THE ACTION OF THE FACULTIES.

All the Mental faculties in their individuality are mere instincts. They spring involuntarily into activity on being excited, and though we may repress their manifestation, we can not avoid the feeling which accompanies the exercise of an organ, when once it has been excited to activity; Acquisitiveness, for instance, instinctively desires to possess, and the accumulation of property affords it gratification. If there were no feeling of fear, nor any sentiment of justice in the mind, it would seize upon property wherever it existed without regard for the rights of others, or dread of the pain which might be inflicted by him whose rights it would assail.

In the squirrel, Acquisitiveness acts thus blindly and instinctively. The mere sight of an ear of corn would be sufficient to excite it to activity, and impel it to seize upon the grain, and to store it away for future use. Just so Alimentiveness acts in the bird, prompting it to help itself to seeds which may be exposed to its gaze. The only power of mind which would prevent these from instantly gratifying their desire is Cautiousness, which, if danger were near, would repress the manifestation of Acquisitiveness in the squirrel, and Alimentiveness in the bird. They have neither Conscientiousness to remind them of the rights of others, nor intellect to teach them

how they may supply themselves with food without violating any principle of duty.

Philoprogenitiveness is equally blind and instinctive in its activity. It is naturally related to children, and they are the objects which afford it gratification. If they are well and happy, it delights in their felicity, or if they are in pain, it is grieved and troubled; but it is incapable of perceiving what is good for these children for their own sakes, or of devising schemes for promoting their welfare and enjoyment. This is abundantly evident from the commonly observed fact that many mothers, through the great activity of Philoprogenitiveness unregulated by reason, pamper and spoil their children, and bring upon them as well as upon themselves much unnecessary trouble and unhappiness.

The Intellectual organs, in like manner, respond instinctively to impressions. A very active organ of Tune tends involuntarily to activity, and makes music through its own instinctive impulses. Number, also, when very large, instinctively prompts the individual to perform arithmetical computations. And even Causality, the highest organ of intellect, in its own individuality is a mere instinct, blindly seeking to know causes and remote relations, but there its activity stops. Of itself it can not apply the knowledge which it acquires to any useful purpose. Every-day life brings us into contact with men who think, theorize, and scheme without any apparent object of a practical or useful nature. Books of large dimensions are published, which are full of dreamy speculation, and lacking entirely in positive application to any subject.

When we rise into the Moral region, we find its faculties characterized by the same instinctive activity. Benevolence, for instance, acting alone, would prompt the indi-

vidual to rush to the aid of the distressed without considering the danger which might threaten it, and to give liberally of its bounty to relieve suffering, though by doing so it might take the bread out of the mouths of the children which it loved, and reduce itself to poverty.

Veneration in like manner gives a mere impulse to reverence or worship. In itself it can not discern what objects are worthy of its homage, as is shown by the religious practices of the uncivilized or unenlightened races in bowing down to stocks and stones, and even to animals of the lowest order.

Conscientiousness, although possessing a very high office as a regulator of the other faculties, is blind and instinctive in its activity. It prompts to the performance of duty, obligation, and justice, but the nature of duty and obligation as understood by any one person is dependent upon his birth, training, and associations. The "conscience" of a Carib, or Hindoo, differs much from the moral sense of the Englishman. A Carib, stimulated by the feeling of duty to his people and himself, would do things which an Englishman would regard with abhorrence. In its application to human affairs, Conscientiousness under the guidance of the intellect is necessarily variable. It may decide upon a case to-day in accordance with the facts which are laid before it, but to-morrow, when new facts are acquired, it may give an entirely different, perhaps opposite decision. It restrains the other faculties because it is pained when they pass beyond the bounds of what is just and right, but it is the intellect which defines those boundaries.

Thus each faculty acting alone seeks its gratification blindly, and with a degree of energy proportioned to its size and the influences of quality and temperament.

It has no power of itself to set a limit to its activity, but seeks its indulgence without restraint, except that imposed by the other faculties.

*Special Characteristics of the Classes.*—We come now to consider the question: In what faculty or class of faculties does *the restraining and guiding* power of the mind over its own activity reside? This will be understood clearly, we think, after we shall have discussed the peculiar characteristics of the three great classes of faculties, viz.: the Animal, the Intellectual, and the Moral. The peculiar characteristic of the animal faculties is selfishness. Their activity terminates in self, family, or friends, and they never seek the welfare of mankind in general. The propensities, located at the side-head around the ears, are entirely personal in their activity. Alimentiveness is related to the food which nourishes the individual's own body. Vitativeness gives him a love of life from the mere pleasure of existence. Combativeness imparts the boldness to oppose all encroachment on his own individual rights. Destructiveness seeks to destroy, that the individual himself may not be destroyed. Acquisitiveness is gratified with accumulating for the mere pleasure which it experiences in self-aggrandizement. Secretiveness suppresses feelings which it may be injurious to one's interest to manifest, and gives slyness and reserve which are often highly useful in maintaining the individual against superior power; and Cautiousness supplies the prudence and guardedness essential to the maintenance of existence amid the countless dangers which beset man's pathway.

These faculties may minister greatly to the welfare and happiness of mankind in general, as well as to the individual's own aggrandizement. Acquisitiveness, for instance, may accumulate that one may give the more liberally

to objects of charity. Combativeness may fight valiantly in defense of the weak and the oppressed, without considering its own advantage. Secretiveness and Cautiousness may be exercised in the interest of a stranger, without any regard to self; but it is only as they are conjoined with the higher sentiments of justice and benevolence, that their motives are subservient to the welfare of others.

In the Domestic propensities we appear to make some advance upon the individual selfishness of the faculties which we have been considering, but they are entirely selfish in their nature. They terminate in other individuals, and experience pleasure in the happiness of those individuals, or are pained by their suffering, but it is only because of their natural relation to those objects. The love which springs from Amativeness in its severalty is faithless and indifferent to the welfare of the object of its attachment; but in combination with the other social organs and the moral sentiments, it becomes a most powerful element in the maintenance of social order; some of the noblest institutions of a philanthropic and esthetic nature known to man have sprung from its influence.

Philoprogenitiveness gives a love for children and an interest in them solely because they are the objects to which it is naturally related. It generally acts along with Benevolence, and a disinterested regard for its object mingles with and elevates the mere instinct of parental affection. But in its own individuality it is entirely selfish.

Adhesiveness inclines us to make friends, and to indulge social and fraternal feelings; but it does not give us an interest in its object for that object's sake. It loves merely for the sake of the pleasure which it experiences in the object of its attachment. The ox will sometimes pine

and become sick when his companion is removed, but he does not grieve for his companion on that companion's account, but solely because his Adhesiveness is disagreeably affected by the absence of an object which afforded it pleasure. His grief is of the same stamp whether his companion has been led to the slaughter-house, or introduced to a much more agreeable condition, and is assuaged only by time, or the introduction of another object upon which Adhesiveness may be exercised.

The sentiments of Self-esteem and Love of Approbation are entirely personal in their nature; the former leads us to esteem ourselves and whatever belongs to us, and is completely centered in self; the latter is delighted with praise, and the good-will and respect of our fellow-men. It may, indeed, lead us to treat them kindly, and to make considerable sacrifice of ease and comfort to do them service; not, however, that they may be made happier, but that we may be gratified by the praise and esteem which will be accorded in return for our kindness.

Thus all the propensities and feelings which man possesses in common with the lower animals center in self as their object, and never lead the individual to do good to others purely from a desire to promote their welfare.

The common characteristic of the *Moral Sentiments*, on the other hand, is unselfishness. They tend to lead the individual's thoughts and desires from self outwardly, and they would sacrifice every selfish impulse to duty and principle.

Benevolence is entirely unselfish in its nature. The misery and unhappiness of others cause it pain, and it finds its highest gratification in alleviating their distress and promoting their enjoyment. Its activity, indeed, affords the individual himself much pleasure, but the

normal activity of any organ is attended with pleasure. Its ultimate aim is the good of others.

Veneration gives the tendency to worship the Supreme Being, and to reverence whatever is great and good. It is directed exclusively to other objects, and tends to humble self in the contemplation of their noble and venerable qualities. Hope looks with happy anticipations to the future, and is delighted with the expectation of good to come. It may, indeed, lead the individual to look forward to a good which shall be exclusively his own, but it is not necessarily selfish in its activity. Marvelousness gives faith in the unseen, and a love of the new and the wonderful, but there is no appropriation to self in its activity. Conscientiousness recognizes our own rights as well as those of others, but it would not diminish these, or add to those, one iota beyond the strict requirements of justice. It raises the individual entirely above all personal considerations, and enables him to condemn himself as readily as another, and to sacrifice every personal, family, or friendly interest on the altar of duty.

Thus the Moral sentiments, inasmuch as they tend to lift the individual above all selfishness, and prompt him to seek the welfare and happiness of other beings as their object, are superior to the animal propensities and sentiments, and are naturally constituted to exercise a restraining influence over them whenever their undue activity would lead to abuse. But we have seen that the moral sentiments themselves are blind and instinctive in their activity, and when excessively developed, just as liable to run into abuse as the propensities; hence, while they are naturally constituted to exercise the restraining power over the mind, they are not fitted to be the guides of any faculty or class of faculties. This is the

PROVINCE OF THE INTELLECT,

which is fitted to gather knowledge from every quarter of the universe, to trace out the laws which govern the world, and to perceive the relations which every being and every object hold to each other. It thus gives us the power to foresee consequences and to anticipate results, which may be in the highest degree useful in warding off calamities and in promoting enjoyment.

Acquisitiveness, for instance, being large and active, may desire to acquire wealth. A well-developed Conscientiousness may exercise its due authority, and restrain Acquisitiveness from encroaching on the rights of others, in gratifying its desire. But unless the Intellect be well instructed in the details of the occupation through which gratification is sought for, failure and chagrin will be likely to ensue. Given equal Acquisitiveness and Conscientiousness, the larger the Intellect, and the better informed it is in regard to the laws of trade and the relations of the things with which men deal, the more complete, far-reaching, and comprehensive it is in its operation, and the greater will be the success in the accumulation of property.

Benevolence may be possessed in such a large degree that the mind may run habitually on schemes of charity; but unless the Intellect be sufficiently powerful and well informed to form wise plans, and to carry them out completely, Benevolence will fail of its purpose.

Through the organ of Veneration, man is naturally prone to religion, and disposed to worship the Supreme Being, and to reverence whatever is great and sacred; but if we look back over the history of any people, we will find that the worthiness of the object on which their Veneration has

been exercised has, in general, accorded with their degree of intelligence. Unenlightened by Intellect, Veneration has led man to prostrate himself before idols of wood and stone, and to worship beasts and disgusting reptiles. It has made him the slave of superstition, and caused him to bow down in abject submission to priests, to yield implicit obedience to the asserted representatives of Divinity, even to the giving up of life and property at their command; and it has invested with the utmost sacredness meaningless forms and ceremonies in religious worship. As man has risen in intelligence, priestly authority has decayed, superstition has given place to intelligent faith, forms and ceremonies have lost their sacredness, and the objects of veneration have risen to the true dignity of man's nature.

Amativeness, Conjugality, and others of the domestic faculties, may inspire a person with a powerful interest in another, and ardently desire to form an alliance with him. This love may be sanctified by the truest and purest devotion which Conscientiousness and Benevolence can inspire; yet if the Intellect show the alliance to be improper, unhappiness will inevitably ensue. The true cause of a very large proportion of marital infelicity lies just here. In selecting matrimonial partners, the feelings are too often allowed to forestall the judgment. They fasten upon their object before the Intellect has had an opportunity to become familiar with its qualities. Were the Intellect keen enough to discern character and motive, and powerful enough to rise above the bias of the feelings, it would be in the best condition to guide the individual to an object in which every feeling might be gratified, and the person find enduring happiness.

The peculiar province of the Intellect, then, is to guide

and direct the other faculties in their efforts at gratification. It may be exercised in conjunction with the moral sentiments, and devise schemes for the promotion of justice, charity, and good-will among men; or, combined with the propensities, it may lay plans which will subvert justice, destroy happiness, and bring untold miseries on mankind. If the moral sentiments are deficient, the stronger the Intellect, the greater will be the individual's capacity for knavery. The shrewdest criminals possess keen powers of observation which are made the servants of the masterful propensities, and minister to their gratification; the moral sentiments not being powerful enough to exercise their rightful authority over the other faculties.

*Right Conduct* results from the harmonious activity of these three classes of faculties. The propensities impart prudence, forethought, courage, and energy to the character; the moral sentiments supply the principles by which conduct should be regulated; and the Intellect is the discriminating power which is essential to guide the other faculties in their instinctive efforts at gratification. In order, however, to fit the Intellect to perform this duty successfully, it must be fully instructed in the laws and relations of the objects on which the other faculties are exercised. By nature, the Intellect is constituted to acquire information concerning all the relations of man, and is susceptible of training and culture to an indefinite extent, there being no contingency in this life which the reasoning sense can not fairly resolve.

Looking at human nature from the point of view at which we have now arrived, we are able to obtain a rational view of the springs of human conduct, and to comprehend the true source of a large proportion of the miseries which afflict mankind. If all conduct be right which is in harmony

with the dictates of the moral sentiments and enlightened intellect, and all conduct be wrong which is contrary to the bearing and spirit of these higher powers; then, if society be constituted on the principles of justice and benevolence, we may suppose that he who lives habitually under the dominion of these higher powers will derive the greatest advantages from existence, and that he who lives contrary to their dictates will be wanting in the purest and best enjoyments. This, accordingly, we find to be the fact.

*Two examples.*—Imagine an individual to set out in life, actuated by the conviction that the moral sentiments are naturally supreme, and that they should be the controlling motives of his conduct. He would, in the first place, derive from the mere activity of the higher sentiments a pure and soul-satisfying enjoyment, which no gratification of the selfish faculties can ever confer. He would be an object of the love and confidence of his fellow-men, and on this account would derive from them many personal advantages, as well as the intense gratification which naturally flows from their good-will and esteem. The propensities and inferior sentiments themselves would furnish him with the highest pleasure of which their activity is capable, because sanctioned by pure motives and correct principles.

In the domestic relations such an individual would be capable of inspiring the purest and most devoted affection. How fondly would a wife cling to a husband whose love went out to her with the kind and unselfish devotion which Benevolence inspires; whose active Conscientiousness entirely removed from her the fear of treachery and deceit, and who manifested in his conduct toward her that consideration which results from a due endowment of Conjugality. The children of such an individual would cher-

ish for him sincere respect and fond affection in return for the kindness, the truthfulness, yearning, and justice which he would manifest in his habitual treatment of them. His example also would tend to cultivate in them the same truthfulness, integrity, and benevolence which characterized his own conduct.

In his friendships also, such an individual would manifest a sincerity, a deference to the wishes and peculiarities of his friends, and an unselfish interest in their welfare and happiness, which would bind them to him in the closest bonds. In short, the individual who habitually repressed every manifestation of the propensities and selfish sentiments, not sanctioned by the moral sentiments, would pass through life, receiving—in accordance with the universal law, that "whatsoever a man soweth, that shall he also reap,"—kind, sincere, respectful, and generous treatment from his fellow-men.

On the other hand, let us imagine an individual to set out with no higher idea of life than that it is simply a game, of which the stakes are personal advantage and emolument. The motives of his conduct springing mainly from the propensities and inferior sentiments, his intercourse with his fellows would be characterized by devotion to his personal interests. He would be selfish in his domestic affections, selfish in his friendships, selfish in his pursuit of wealth, selfish even in his deeds of charity and in his exercises of devotion. Such an individual could not win the love and esteem of his fellows. They would see and feel the inherent egotism of his character, and would look coldly upon him. Even in his deeds of charity, in his exercises of devotion, and in his protestations of friendship and good-will, they would suspect a selfish motive, and would withhold from him that love and that sincere respect

and confidence which only the pure and disinterested manifestation of the higher sentiments of Justice, Benevolence, and Veneration can inspire.

If he possessed intellectual penetration, he would recognize the fact that his friendships and all his intercourse with his fellow-men were founded upon an unsubstantial basis, and this would give rise to feelings of distrust and disquietude, and cause him to look upon all men as hollow-hearted and insincere. Such an individual would never experience the deep gratification which flows from possessing the esteem of the virtuous; he would be denied the internal satisfaction which naturally results from pure motives and correct moral principles; and he would naturally become an object of the ill-will and hatred of his fellow-men. Thus would the selfish faculties, by their unregulated activity, defeat the very purposes which they most ardently desired; and the individual would be denied both the pure enjoyment which flows from the activity of the moral sentiments, and the high advantages which result from the gratification of the selfish faculties themselves. He would pass through life deploring the selfishness and hollow-heartedness of a world whose nobler qualities he was incapable of evoking or appreciating, and he would look back upon his career, when it was finished, and complain that all had been "vanity and vexation of spirit." But the fault would be his own; for as he had sown, so would he also reap; and he would have no good reason to complain if the fruits of his sowing should prove ashes and bitterness to his soul.

# CHAPTER XIV.

## THE RELATION OF PHRENOLOGY TO METAPHYSICS AND EDUCATION.

If the doctrines unfolded in the previous chapters be true, the most important results will naturally flow from their practical application. In the first place, they furnish a scientific basis for the facts and phenomena of mind, and thus enable an observer to analyze and classify those phenomena, and to deduce a system of principles which shall prove eminently serviceable in mental education, and in the development of character.

Previous to the dawn of anatomical and physiological science, the structure and functions of the human body were unknown. Men suffered countless evils in consequence of this ignorance, through infringement of the laws which govern the physical system. When disease attacked them, they could not tell which organ was affected. They knew little of the nature of the disease, the causes which produced it, or the remedies to be applied for its removal. People of strong religious sentiments regarded disease as a judgment sent upon them from heaven in consequence of their sins, and to be removed only by prayer, and stricter attention to moral duty. Among many of the heathen nations sickness is regarded still as resulting from the malign influence of an evil spirit, and its removal attempted through sorcery and incantations.

Now, civilized nations no longer suffer from the terrible

plagues which once devastated whole lands, because of our greater knowledge of physiology, and our attention to the hygienic conditions essential to the preservation of health. It is true that much suffering is still endured on account of ill-health, even in our most enlightened communities; but it is only because people are willfully ignorant of what they might know, and selfishly disobedient where obedience would prevent or alleviate their sufferings.

The science of Phrenology stands in a similar relation to the mind that the science of Physiology does to the body. It defines the organs of the mind, their locations and functions, and interprets the laws which govern their activity, health, and development. No other system of mental philosophy recognizes the fact that every faculty of the mind has a special organ for its manifestation. Indeed, the most contradictory opinions are held among metaphysicians in regard to these faculties; some attributing to the mind powers and qualities which are denied by others. Some vaguely utter opinions with reference to supposed locations of the intellect and the passions, and some gravely debate as to whether the mind operates through the agency of any material organ. Were the science of Physiology in so uncertain and variable a state as metaphysics, it is obvious that men generally would receive its teachings with very little confidence. If some physiologists were to assert that assimilation, nutrition, decay, and renovation were original functions of the body, and others were to argue that they were not original powers, but only the results of functions still more primitive; if it were debated among them whether digestion, circulation, secretion, and excretion were or were not bodily functions; if it were asserted that the bodily functions were carried on by the body as a whole, and that there

was not the slightest reason for supposing that the body was made up of many separate organs, each possessing a distinct office in the animal economy; it is clear enough to our present intelligence, that so crude a condition in physiology would furnish us no practical and reliable rules for our guidance either in promoting health or in removing disease.

Now it appears to us that the old systems of mental philosophy stand in a similar relation to the mind, its organs and faculties, that this hypothetical condition of the science of Physiology would hold to the bodily organs and functions; and that Phrenology, by discovering the dependence of the mind upon organization, the relations subsisting between the mind and the brain, and between the different faculties of the mind, has given to the science of mind a definiteness and accuracy hitherto unknown, and substituted the certainty of demonstration for the confusion and uncertainty of speculation.

### MIND DEPENDENT UPON BODY.

If the brain be the organ of mind, it is reasonable to suppose that the better the health, and the higher the condition of that organ, the more vigorous will be the manifestation of its powers; the brain being a part of the material system, it is necessarily subject to the same physical laws which govern the other parts of the organism. If any part of it be called into activity the blood is determined toward that part, and the processes of exhaustion, decay, and renovation go on more rapidly. If the exercise be resumed at regular intervals, and not carried too far, the part grows in size, strength, and facility of action. If, however, the exercise be excessive, and the part be not allowed the repose necessary to restore the waste of its

activity, it becomes exhausted, disease may supervene, and imbecility or insanity follow as the natural consequence. A knowledge of this law of the brain's activity is very important in education. Ignorance, or inattention with respect to it, has brought weakness, disease, and premature death on many brilliant minds, and defeated the ends which they most ardently desired to attain. It is in accordance with this law of the brain's activity that great grief, severe misfortune, and exalted excitement often produce insanity. The mind brooding continuously on one thing, keeps the material organ constantly on the strain, and the excessive activity thus induced causes it to become exhausted, weakened, and diseased; and then we have a deranged manifestation of its faculty.

The light which Phrenology throws upon the education and training of the young may now be appreciated. By indicating the nature of mind and the elements in its composition; by showing that each of these elements or faculties has an appropriate organ in the brain, which may be excited to activity independently of the rest; by disclosing the laws which govern the exercise of these organs, it provides information of a most valuable and practical character with respect to mental growth and training.

*Some differences noted between Metaphysical views and Phrenology.*—In the education of the intellect it has long been known that the exercise of any talent increases its energy and facility of action; but the principle upon which this improvement takes place was not understood before the discoveries of Dr. Gall, and even at the present day it is unknown to the great majority of teachers. The metaphysicians readily concede that musical or mathematical talent may be greatly improved and strengthened by cultivation; but they nowhere treat of a talent for music and

computation as original faculties of the mind, nor as depending upon distinct cerebral organs. They treat of perception, conception, sentiment, memory, judgment, etc., as original powers of the mind; but our philosophy teaches that these are only modes of mental activity common to many different faculties. The organ of Form, for instance, enables us to perceive the shape of an object; Size, its magnitude; Weight, its density; Color, its hue; Order, the arrangement of its parts; Calculation, their number; and Locality, the place which it occupies. Each of these distinct modes of mental activity may be correctly termed perception. Each of these organs, in like manner, when internally active, may present to the mind ideas corresponding with its function without the visible presence of an object which is naturally adapted to excite it to activity. This mode of action is properly termed conception, and is common to all the intellectual faculties. Memory, also, is a term applicable to nearly every faculty of the intellect, and is not itself a distinct power of mind. For it is well known that an individual may have a good memory of faces, but a poor memory of names; a good memory of colors, but a poor memory of tunes; a good memory of places, but a poor memory of dates; a good memory of facts, but a poor memory of principles or theories. Were memory a separate power of the mind, these phenomena could not occur, for it would then be capable of recalling with equal facility, every class of ideas which had once been a part of the mind's experience.

Now it is clear, if the phrenological theory be the true one, that any rules laid down for the cultivation of perception, conception, memory, etc., as primitive or independent faculties of the mind, must be exceedingly partial and indefinite. If a metaphysical professor were to say to his

pupil, "Your faculty of perception, or your faculty of conception is weak; in order, therefore, to strengthen it, please give it exercise," the pupil would be at a loss to know where to begin, or how to proceed. But if the phrenological theory of the organs and faculties were explained to him, together with the principles which govern their activity, he might enter upon the improvement of his defective mental faculties with intelligence. He might then find, perhaps, that his deficiency in perception was only partial; that while his perception of forms, proportions, or colors might be imperfect, his perception of harmony in music and melody might be excellent. In memory, also, he might find that he could easily recall principles, while facts and circumstances would be remembered with difficulty; that while his verbal memory might be good, his memory of the places which he had once visited might be weak; that while being able to recall dates and figures easily, the faces and names of persons would be retained with difficulty. These remarks apply with equal force to many other *original* faculties of the old systems of mental philosophy, and serve to illustrate the partial, unreliable, and impracticable results which flow from an imperfect—because scarcely more than hypothetical—method of mental investigation.

### APPLIED IN THE EDUCATION OF CHILDREN.

Turning our attention to the propensities and sentiments, we find that our philosophy furnishes equally precise and practical information in regard to the training of the disposition and the development of character. Many fond parents refrain from correcting their children in the early period of their existence under the impression that they are too young to appreciate moral training, and that when

they become older, their intellects will enable them to distinguish between good and bad conduct; and that then they may be addressed, and a reform effected, through the reason. But our philosophy teaches that while the intellect may exert a reforming, because enlightening, influence over the conduct, its power to do so depends in general upon its development as compared with that of the propensities and sentiments. Phrenology refers the violent temper, the stubborn, willful, and perverse disposition, the tendency to deceitfulness, etc., to the primitive faculties of the mind, and shows that in order to modify the disposition, the material organs through which the faculties are manifested must be reached, and our influence exerted directly on them, either to restrain the bad or to call forth the good, in accordance with the laws of their organization.

What these laws are may be easily apprehended. Every mental organ is naturally related to a certain class of objects which, when presented to it, excite it to activity, and by this activity it grows in strength and facility of action, just as a muscle grows in size and power by exercise. Thus, danger and objects of terror are the natural stimulants of Cautiousness; praise, of Approbativeness; opposition, of Combativeness; food, of Alimentiveness, etc. Now, Alimentiveness, Combativeness, and Destructiveness come into activity almost at the beginning of the child's existence, while Cautiousness, Approbativeness, and Firmness may be very influential elements in the disposition long before the intellect has been sufficiently developed to enable it to judge wisely in regard to conduct. "Let it not be forgotten," writes Spurzheim, "that from the earliest age, the feelings as well as the intellectual faculties may be educated, and that young children show

no less difference in their characters than in their talents. They are patient or obstinate, indolent or lively, timid or courageous, attached to, or careless about others," etc.*

If, therefore, parents allow the propensities of their children unrestrained activity during their infancy under the belief that when they are older, they may be reasoned out of their evil tendencies, they commit as great a folly as would the husbandman who should allow weeds to grow up among his corn, under the impression that when it was well grown, it would better bear their eradication. The weeds smother the corn and obstruct its growth from the very beginning, and the longer they are allowed to grow, the more difficult becomes their extermination.

*Three Methods Indicated.*—In the training of the propensities of children three methods may be pursued: first, physical restraint; second, a withdrawal from them of their natural stimulants; and third, their arraignment before the intellect and moral sentiments, as the powers naturally adapted to exercise authority over them. Alimentiveness is naturally the first propensity which comes into activity. It responds to the body's need of nourishment, and when instructed and unperverted, is a reliable guide as to the kind and amount of food necessary for the maintenance of the physical system; but this organ, in accordance with the laws of hereditary descent, which govern every part of the body, is most surely liable to be transmitted from parents to children with an excessive degree of energy, so that in the very commencement of the child's existence it may give a desire for a much greater amount of food than is necessary to supply the needs of the system. Unless this desire be restrained within reasonable bounds, it is clear that it will be likely

* "Education Founded on the Nature of Man." J. G. SPURZHEIM.

to work much injury to the health of the child by imposing on the stomach an excess of work, and clogging the system with a superabundance of food-material. The organ itself increases in size and vigor by unrestrained indulgence, and thus becomes more and more a source of evil and unhappiness to its possessor. Many parents are so ignorant in regard to proper methods of training, and so biased in their judgments through a foolish fondness inspired by the unregulated activity of Parental Love, that they not only allow their children an injurious indulgence of the appetite, but even make it a means of securing their obedience. They quickly perceive what a powerful influence it gives them over their children, and it is appealed to on every occasion as a chief means of discipline. A sugar-plum, a stick of candy, or a piece of cake is, with such persons, the current payment for obedience, and thus the gratification of an inferior propensity is trained to hold the high place of a motive to conduct, which should be occupied only by the moral sentiments.

*Furious Anger* arises from the unrestrained activity of Combativeness and Destructiveness, while Self-esteem and Firmness are the sources of a willful and stubborn disposition. If a child be allowed uncontrolled liberty of action, and is permitted to have its own way and to carry its point in the face of opposition, these organs may acquire a fearful ascendency in its disposition, manifesting themselves in a pettish, willful, and headstrong temper, and in an impatience of restraint which is the occasion of the most violent and ungovernable passion. Some children, from a larger original endowment of the organs on which these characteristics depend, are naturally prone to a high temper, and an obstinate, headstrong disposition. These must be treated with special care. All manifestation of

passion in dealing with them should be avoided; for it is a law of the mental organs that they are excited to activity by the manifestation in their presence of the same characteristics which it is their function to manifest. A proud and haughty manner exercised toward an individual naturally excites his pride in return. Stubbornness in one individual calls up the same trait in another, as is abundantly illustrated in the common affairs of life, where we see men contending over trivial matters, actuated by no other principle but a determination not to yield a single point so long as their opponents refuse to do the same, and engaging in expensive litigations in which the stake at issue is unimportant compared with the expense of gaining it. A balky horse is a good illustration of this disposition. Whipping and harsh treatment only make him the more stubborn, while kindness will often render him tractable and obedient.

In dealing with a headstrong and passionate child, the parent should be gentle, firm, and self-possessed. His manner toward it should result from the dictates of the intellect and the moral sentiments. The manifestation toward it of these higher faculties will naturally excite to activity the corresponding organs in the child; while the absence of passion and unreasoning obstinacy in the parent's conduct offers no excitement to the inferior faculties of the child. Such treatment will be conducive to that true mental development in which the intellect and moral sentiments exercise the authority which rightly belongs to them over the other powers.

An illustration of wise management on the part of a mother is seen in the following extract from a letter received lately by a well-known teacher of Phrenology in New York from a lady residing in the West, viz:

"I have been at Mount C., Mich., taking baths, and the lady I boarded with told me about taking her little child, then four years old, into your office for an examination. Among other things, you said, 'When this child has fits of passion, don't punish him, but draw his attention as quickly as possible to something else.' The child was subject to most violent fits of passion; would upset and throw everything he could lay his hands upon, although he knew he must restore things to their proper places in the end. The way you suggested was one she had never tried, and she found it to work admirably.

"Sometimes she would pick up a book and begin to read poetry, of which the child was very fond, and soon he would steal up to her side and lay his head on her shoulder, completely subdued. At other times, and always without noticing him, she would begin to talk about some subject of special interest to him, and he would forget his rage. Patiently working in this manner, the gentle Christian mother has won her reward in one of the most dutiful, thoughtful, pleasant-tempered, and affectionate of sons. You said that he would make either a very good man or a very bad one, and now, at fourteen, he promises fair to be a very good one. H. L. M."

*Bribes and Threats Improper.*—Cautiousness and Approbativeness are often developed to a prejudicial extent through wrong training. The element of fear is generally one of the most influential among the mental traits of young children, and on this account is frequently made use of as a means of discipline. Ignorant nurses and servants, as well as ignorant or injudicious parents, are prone to make use of the easiest means of governing children. They purchase obedience by bribing the appetite or

by bestowing upon the child extravagant praise, or by exciting its fear through threats of terrible punishments. It is too often the practice to frighten children by absurd, hobgoblin stories. Thus the organs which are already over-developed, and should have their activity repressed, are stimulated to further excesses of activity. Cautiousness is perhaps more frequently abused in this way than any other faculty. From inexperience and undeveloped reason, children are exceedingly credulous. They readily believe the most absurd stories of goblins and witches; and threats to shut them up in the dark, where they will see raw heads and bloody bones, or to cut off their ears, or to call the rats or a big dog to devour them, will excite terror in their minds in proportion to the degree in which the organ of Cautiousness is developed. A severe strain is thus often produced on the nervous sensibilities of children which is exceedingly prejudicial to their physical health, and sometimes proves the cause of morbid nervous conditions and even of insanity.

*Praise.*—A child whose Approbativeness is largely developed, will be very sensitive to praise and to blame. This faculty, indeed, is seldom deficient in children, and is frequently rendered excessively active by injudicious praise. A child is often flattered by its parents through over-fondness. It is flattered by visitors to please the parents, as well as to gratify the child. Whatever "smart" thing it says or does is rehearsed in its presence, and its improprieties are even excused on the score of its age or the discovery in them of some element of supposed talent. Under such constant stimulation, the love of praise soon comes to be the chief motive of the child's conduct, and unless the intellect and moral sentiments are powerful enough to rise above this false training, vanity and a vulgar love of

display and ostentation will be likely to cling to the child through life. With the votaries of fashion Approbativeness is generally the controlling organ. We do not find them asking whether or not a given line of conduct is consistent with good sense, or kind, just, and honorable, but what does society think of it? What will people say? And whatever will win the favor or attention of others as vain and frivolous as themselves will be adopted and acted upon, though it may be in plain contradiction to the dictates of intellect and moral sentiment.

*Moral Training Essential.* — It is of the highest importance also, in the training of children, that the moral sentiments be called into habitual activity, that they may be accustomed to exercise over the propensities and inferior sentiments the authority which rightly belongs to them. It is not enough to say to a child, Do this, or Do not do that, but the reasons why it should do this or should not do that ought to be explained to it in so simple a manner that its own intellect may perceive the wisdom of the command, and its own Conscientiousness be led to decide on the right and the wrong in the matter. If a parent wishes his child to grow up with a kind and benevolent disposition, he must not rest content with the mere precepts which enjoin good-will and charity to men; he must accustom his child to the actual performance of self-denying acts and deeds of kindness and benevolence. The excuse, "Too much trouble," or "I haven't time," is a wretched plea on the part of a parent who is negligent in this most important branch of child-training, and the waywardness of many a boy or girl of good original endowment may be traced directly to the negligence which was sought to be palliated by such a plea. A well-known American kindergarten-teacher says, appreciatively: "One needs always to

remember that discipline is only to be the assistant of the true educator, and not the principal motive. When one commands, as has been said before, it must be done quietly, but decidedly, and take care not to resort to the two favorite methods of rewards and threats, both of which presuppose the possibility of disobedience, and are, therefore, not decided enough, and are defective also in so far as they are simply external motives of actions. The individuality of each child must also be brought into consideration, as well as their physical constitution and disabilities. The most difficult of all things during the first years of the child's life, is the task of awakening and preserving the germs of goodness in his heart. At this tender age these germs may be led into two opposite directions; according to the influencing circumstances they may become virtues or vices. Thus timidity may grow to be modesty or abjectness; fear may grow to be prudence or cowardice; the natural roguishness or foolhardiness of children may develop into energy, executiveness, or cruelty and rudeness. It requires as much decision, tact, and watchfulness to stem the flow of any capacity or tendency in the direction of vice, as it requires care and trouble to fan the tiny little flame of the natural disposition in the direction of virtue."*

*Necessity of Example.* — The music-teacher never expects to make his pupil an expert performer by mere precept; however thorough his instruction, the pupil will fail of excellence unless her fingers are trained by persistent practice to touch the keys with facility and exactness. So in the culture or growth of character, we must go back to the original mental organs and excite them to activity by the actual practice of those virtues which we desire to de-

* Mrs. L. Pollock's "Kindergarten Lecture."

velop, if we would obtain permanent and useful results. In the accomplishment of this purpose it should be remembered, also, that example will exert a powerful influence. It will be of little use for a parent to inculcate the precepts of truthfulness, justice, kindness, honor, and discretion, if his own actions belie his teachings. He must not only preach, but practice what he preaches, else his children will lose confidence in his precepts and despise his authority. Children are very quick to notice any neglect of duty or inconsistency between precept and practice on the part of their parents, and many children are taught the manners of cunning and duplicity by fathers or mothers who lay down laws for their little ones and give little heed to observing their spirit themselves.

### THE CRIMINAL CLASS—THEIR TREATMENT.

The laws of mental activity which have been discussed in the foregoing remarks on the training of children, are universal in their application. All conduct, the virtuous as well as the vicious, has its origin in the mental organs, and to them we should go in our endeavors to root out vice and to promote virtue; for no reform can be permanent which does not reach back to the sources of moral conduct. Hence, in our treatment of criminals it is not enough that we shut them up in prison and train their hands to some useful employment. This treatment is good so far as it withdraws them from the natural stimulus of their evil propensities and calls into activity the higher power of intellect; but we can not hope to reform them and make them good citizens unless our influence reaches their moral sentiments. These must be called into exercise and trained to exert their proper influence in the mental economy, to

control the inferior powers of mind, else we can have no assurance that the criminal will not relapse into crime as soon as he is released from physical confinement. In dealing with the criminal classes it should be remembered that they are such in consequence of a preponderance of the animal nature over the moral, a positively unbalanced mental condition, and that they are, therefore, as truly deserving of sympathy as the deformed or the idiotic. The better class of the community—those whose higher faculties exercise an habitual control over the lower—are, in a social sense, the keepers of these unfortunates. It is for them to remove temptation as far as possible from the propensities of their weaker brethren, to destroy all causes which inflame their animal passions, and to surround them with those influences which tend to call forth whatever may exist in them of the qualities which dignify and ennoble human nature. In the performance of these duties their own moral sentiments will be rendered habitually active, and thus develop a truer manhood, while, at the same time, they are lifting their unfortunate fellow-men from degradation, rendering them self-helpful, and relieving the community from the unhappy results of crime.

*Brain and National Growth.*—The customs and institutions of a people can never be superior to their mental development. If we examine the crania of the different nations of the earth, we will find a direct correspondence between them and the degree of the nation's civilization; and the typical cranium of any period in a nation's progress from barbarism to the highest civilization is an indication of the development of their mental organs; and from this development we may infer in general the character of their pursuits, their amusements, and their institutions. The physiologists are wont to refer to crania like

the Neanderthal, Mentone and Calaveras skulls as representative of the mental conditions of ancient man.

All our schools and institutions of learning promote popular advancement by the cultivation and development of the intellectual faculties, and, coincidently, knowledge is diffused. Our asylums, our prisons, and reformatory institutions are useful to society in so far as they tend to place a restraint on the undue activity of the propensities, and to secure the normal and harmonious activity of the mental faculties. Our laws and political institutions are indispensable to the welfare of the people, because essential to regulate the activity of the selfish and physical faculties; and our religious societies are in the highest degree promotive of human progress, because, while they inculcate precepts which appeal directly to man's moral nature, and thus tend to exercise those powers which are naturally constituted to promote virtue and to repress vice, they present the most powerful motive to right conduct by linking the concerns of the present life with a future and spiritual one.

*A General Conclusion.*—After what has been said, it may be unnecessary to observe that the material organs of the mind are the basis on which all human improvement, as it is exhibited to our physical consciousness, must be built. There can be no progress except through the instrumentality of these organs, and any reform in the life and conduct of an individual must take place in accordance with the laws which govern their activity. Experience may teach us in a vague and indefinite manner the general method by which these laws operate, as experience will teach the farmer the general method of managing his soil and crops. But as the farmer who ignores science, as it is related to his vocation, would be liable to defeat his own

best interests frequently through ignorance of the laws and conditions under which nature operates, so the most strenuous endeavors of the virtuous and benevolent in behalf of the amelioration of their fellow-men will often prove abortive and defeat their own ends, unless guided by a thorough knowledge of the mental constitution, its laws, and modes of activity.

# CHAPTER XV.

## VALUE OF PHRENOLOGY AS AN ART.

PHRENOLOGY, as a system of mental philosophy, is superior to any other science of mind which has been formulated. But beyond the advantages which it possesses over other systems as a science, it stands alone in the application of its principles to the delineation of character. No other system of mental science makes any pretensions to character-reading as an art, but is confined to collecting and collating the facts and phenomena of mind as they appear through consciousness. We do not by any means claim that Phrenology is complete as an art any more than we do that it is complete as a science, or that the most skillful will not frequently make mistakes in judging character from external forms. The chemist, the geologist, the astronomer make mistakes in their respective spheres and are excused. Any one who will give his attention for a little time to the matter, will be able to appreciate the magnitude of the difficulties under which the practical phrenologist often labors in estimating correctly the size of mental organs, the manner in which they combine, the degree in which the activity of each is modified by its combination with others, and the effect of the modifying conditions of temperament, health, education, activity, etc. And any one who will make himself familiar with the grand principles of the science, so as to comprehend their immense practical utility in all the concerns of

life, will concede that it is worthy of the very highest consideration, although its application to the delineation of character were a chimera.

But while the deductions of the practical phrenologist may not always possess the certainty of a mathematical demonstration, we claim for Phrenology, as an art, peculiar and important advantages. In our social, domestic, and business relations the characters of those with whom we have to deal are linked in a very important degree with our individual interests. Merchants are liable to be defrauded by employing dishonest clerks. Persons in the employ of the Government frequently embezzle funds which are intrusted to their care; servants often cause their employers much inconvenience and annoyance through their incompetency, and their deceitful and unamiable conduct; in short, we are liable to be continually deceived by those with whom it is necessary for us to deal, but whose characters are unknown to us by experience. It is true, in general, that we need not place our property in the hands of others without exacting bonds for their good conduct, or employ clerks or servants without a certificate of previous good character. But bonds do not always save us from loss, and recommendations are by no means assuring. We need to make use of every safeguard, and any means which will increase our security in the good conduct of those with whom we have to deal should be assiduously cultivated. If the experienced practical phrenologist were always at hand to pronounce judgment on the character and ability of those seeking places of trust and responsibility, we feel confident that losses to employers from dishonest and incompetent employés would be greatly diminished. The phrenologist should be consulted just as the lawyer or the doctor is, and a certificate of character from his hands

should be deemed as essential to one seeking employment as a recommendation from a previous employer. If the two certificates agreed, we might rely with confidence on the character which they ascribed to the individual, while any discrepancy between them would naturally put us on our guard, and lead us to make careful inquiry into the character which the person had previously borne.

### SOME ILLUSTRATIONS.

As an instance of the practical utility of Phrenology when applied in the manner above recommended, Mr. Combe relates that, in one instance, he refused to hire a boy because he found that his head indicated a low grade of development, although the boy was introduced by a woman whose good conduct and discrimination he had long known, and who gave him an excellent character. The woman was at first greatly incensed by Mr. Combe's refusing to engage the boy; but within a month she returned, and said that she had been greatly imposed upon herself by a neighbor whose son the boy was; that she had since learned that he was a thief, and had been dismissed from his previous service for stealing.

On another occasion, Mr. Combe hired a female servant because of the testimony of her head as to rectitude, etc., although her former mistress gave her a very different character. She turned out an excellent servant, and remained with him for several years. He afterward ascertained that her former mistress possessed a head of an inferior order and hence was continually nettled by the superior mental endowment of her servant. The servant's ill-humor was naturally excited by the causeless irritability of her mistress, hence she appeared to the latter hasty in

temper, obstinate, and disagreeable, and was given a corresponding character.

A year or two since, one of the authors of "Brain and Mind" having occasion to select a house servant, did so in accordance with his knowledge of the human organization. The young woman when first presented to his family did not make a favorable impression, some of its members declaring that her appearance was much against her, and that "she would not do at all;" that there was "an untrustworthy look about her." A week's stay, however, showed her to be a most industrious and faithful domestic, and kindness brought out a strong expression of regard on her part.

The experience of eminent practitioners of Phrenology can furnish hundreds of instances which illustrate the important aid this science confers on society. Scattered through its literature are the acknowledgments of a great multitude of men and women, testifying to the benefit which they received from an examiner's counsel or the reading of a phrenological work. Well might a distinguished educator say, "If Phrenology could be proved to be a science, it would be a more beneficent invention than the electric telegraph, because it would help to put the right man in the right place."*

*Of Special Importance Where.*—These observations on the application of Phrenology to the selection of clerks and servants have a bearing on all our intercourse with our fellow-men. Even if we lack the practical experience necessary to judge of character from external forms, a knowledge of Phrenology as a science will be found eminently useful in enabling us to analyze the characters of those whom we meet, and to discern the motives and

* Pres. Hunter, New York Normal College.

sources of their conduct. How much domestic infelicity might be avoided if the real character of those about to unite in matrimony were laid open to view, and each were enabled to dissect and analyze the mental traits of the other with the critical and dispassionate eye of science! What severe and mortifying disappointments would not many an individual be spared if, when about to choose his life pursuit, he would listen to the voice of science as interpreted by a competent phrenologist, and choose his calling in accordance with his natural endowment. Through ignorance of physiology and the constitution of the mental faculties many parents seem to think that a child may be molded into any form that their fancy may dictate, just as a sculptor would carve an image from a block of marble; and so they place their children under the tutelage of instructors to be developed into successful doctors, lawyers, divines, or men of science. The sculptor can chisel the inanimate marble into any form which may be desired, and the beauty of the image will depend upon the skill of the artist. With the living human subject, however, the law of his being determines the form without. Skillful training may accomplish much for any one, but its influence is limited to developing what already exists as a native endowment. It can not create a single faculty; it can only work on the material which nature has already supplied, and in accordance with the laws which she has imposed upon it. Hence the importance of making use of every means in our power to ascertain the qualities and faculties which nature has bestowed, that we may co-operate with her in the production of perfect mental forms, and that we may not be found wasting our resources in a futile attempt to mold a colossus out of the material of a pigmy.

To the teacher, the lawyer, the doctor, and the clergy

man, a knowledge of this science will be found especially useful. The peculiar vocation of the teacher is to train and develop the youthful mind. In order to be successful in this, it would seem to be of the highest importance that the elements, or faculties, of the mind should be definitely known, and that the laws which govern their activity should be thoroughly understood. Children differ greatly in their mental constitutions, hence the same modes of instruction and discipline can not be employed with equal success in all cases. The teacher should be able to estimate and appreciate this difference that he may adapt his method of instruction to it, and thus act in harmony with nature, and not in antagonism, as one is likely to do who is not conversant with the laws of human organization.

Much of the lawyer's success depends upon his ability to read and comprehend the motives or sources of human conduct. He should be able to discern readily the faculties which are most influential in the character, that, like a skillful general who knows thoroughly the position of the enemy, he may determine when and where to move his forces that they may prove the most effective. Patrick Henry's success at the bar was due, in a large measure, to his intuitive knowledge of human nature. He studied the faces of jurymen that he might discern the effects of his arguments, and learn how his appeals should be urged in order to win them over to his views.

The clergyman, for many reasons, will find a knowledge of this science highly advantageous to success in his avocation. An individual's religious character is not something which is stamped upon his life by external influences, but results from the calling into activity of powers which the Creator has already implanted within him. "Besetting sins" result more from the unregulated activity

of tl e physical and passional elements than from the influence of circumstances. To teach his people how to overcome these, as well as how to develop their moral faculties, a correct theory of mind is indispensable.

One of the most eminent of American pulpit orators was once asked whether or not Phrenology had aided him in his profession as a preacher, and he promptly replied: "Suppose I were on an island in mid-ocean, and permanently cut off from obtaining anything from the rest of the world, but having all the tools and machinery for raising crops and manufacturing other useful things; and suppose some night pirates should land and rob me of all they could carry off, and burn my books, tools, and machinery, and leave me, despoiled and desolate, to construct such rude tools as might be possible under the circumstances. Without Phrenology and the aid it gives me in treating of mind, I should be as much at a loss how to proceed effectively in my vocation as I should to carry on farming with my appropriate implements destroyed."

These remarks are applicable in a greater or less degree to every pursuit where mind comes in contact with mind. To know how to meet men, to avoid exciting their disagreeable characteristics, and to call into activity their kind and amiable qualities, will greatly facilitate our intercourse with them, and prove highly advantageous in promoting our individual interests. Any philosophy which professes to unfold human nature as it is, and to lay open the secret springs of human conduct, is surely worthy of our consideration. And in proportion as such a philosophy is practical and adapted to the every-day needs of men must it be valuable.

The venerable John Neal, long known among American

authors of eminence, wrote the following emphatic statement a few years before his death:

"I am asked what I have to say about Phrenology in this age of the world. To which I answer, first, that I look upon Phrenology as now understood, by experts and professors, not only as a science worthy the name of science, but as one of the greatest discoveries, and one of the most beneficent and useful, if rightly employed, that was ever made by mortal man. There was a time when it would have passed for inspiration. But what has it done —what is it doing for mankind? Much every way—infinitely more than the people have an idea of. It is modifying our whole system of education. It is changing all our notions of insanity, and leading to new treatment in our hospitals and courts of justice."*

* AM. PHRENOLOGICAL JOURNAL, Sept., 1866.

# CHAPTER XVI.

## PHRENOLOGY AND PHYSIOLOGY.

A TREATISE on Phrenology intended for general reading would be lacking in completeness did it not include a survey of the state of the science at this day, of the progress which its principles have made in the literature and general scientific thought of the day.

Fifty years ago the advocates of the system introduced by Drs. Gall and Spurzheim constituted a class by themselves. Their opinions with respect to the structure of the brain, and its mental relations, were so new, and so revolutionary that most of the leaders in the old schools of anatomy and metaphysics, in spite of the clearness of the demonstrations of Spurzheim, and the comprehensive reasoning of George Combe, held aloof, nursing their conservatism and distrustful of the evidence furnished by their senses.

The spirit of the early opposition to the new doctrines is well indicated in the published attacks of Dr. John Gordon of the University of Edinburgh, of Mr. Jeffrey, so long the editor of the *Edinburgh Review*, and of Sir William Hamilton. The underlying motive or chief stimulus of these attacks appears to have been the belief current then in English and Scottish religious circles that Phrenology sustained or tended to materialism and infidelity, and this impression led men hitherto generally recognized as calm, dispassionate critics, to indulge in bitter expletives.

and often to forget the canons of logic and rhetoric. The most notable attack was that of Sir William Hamilton, and it may be taken as an embodiment of all the objections that Scottish philosophy and physiology had to urge against Phrenology.

### THE OBJECTIONS OF SIR WILLIAM HAMILTON.

Hamilton, on two several occasions, read papers on the new system before the Royal Society, in which he criticised it as set forth in a treatise by Dr. Spurzheim. As soon as Spurzheim heard of Hamilton's proceeding, he sought an opportunity to reply before the same audience, but was refused on a merely technical ground, that of his not being a member of the society. Then he endeavored to bring about a discussion before the public between Hamilton and himself, in which the points of Hamilton's papers should be the topic. But the staid and somewhat ascetic Hamilton was disinclined to such a proceeding. A long controversy ensued, in which Mr. George Combe took the most prominent part, and in which, occasionally, Dr. Combe appeared as it were to furnish some needed testimony in support of his brother's statements. A meeting between Hamilton and George Combe, however, was in the meanwhile brought about before three gentlemen of well-known reputation, but no definite result was reached, as the arbiters concluded, after a few hearings of what the contestants had to advance, that the whole party should attend the pathological dissections at the Infirmary and Fever Hospital, as one of the only means of obtaining correct data for their purpose.*

Finding subsequently that the observations that they had begun would require years before they could arrive at any

* See letter of Mr. George Combe in the *Caledonian Mercury*, dated January 23, 1828, at the end of this chapter.

general result, the matter was suffered to drop. This was in 1827. Later on, the voluminous correspondence between Hamilton and Dr. Spurzheim and Mr. Combe, which was conducted in the first three months of 1828, brought out many of the points of objection entertained by Sir William, and exhibited in a clear light the moral tenor of his attack.

In a letter to the *Caledonian Mercury*, under date of 19th of January, 1828, Sir William tabulates fourteen "Phrenological Propositions," and an equal number of "Counter Propositions," which substantially embraced the points which he had proposed for the determination of the three arbiters the year before. In that letter he reiterates a statement made in a letter to Mr. Combe, which runs thus: "I bind myself to prove, not *simply* that the assertions of Drs. Gall and Spurzheim, in regard to the fundamental conditions of their hypothesis, are *false*, but that they are *diametrically opposite to the truth*." As Hamilton is to-day with many, whose personal knowledge of phrenological doctrines is scanty, the "great demolisher" of the Gallian system, it may prove interesting to the reader to cite at length the propositions upon which his grand effort at demolition was founded.

"I. *Phrenological Proposition.*—In old age the walls of the skull increase in thickness, and the cases in which the cranial bones wax thinner as the subject declines in life constitute exceptions from the general rule.

"*Counter Proposition* (Hamilton's).—The rule is here the exception, and the exception the rule.

"II. *Phrenological Proposition.*—Young and adult (*sic*) persons have no cavities between the tables of the frontal bone; and the real frontal sinuses occur only in old persons, or after chronic insanity.

"*Counter Proposition.*—The absence of the sinus in young and adult subjects, so far from constituting the universal law, is a rare if not a doubtful anomaly.

"III. *Phrenological Proposition.*—Before the age of twelve or fourteen the frontal sinus never, or almost never, exists.

"*Counter Proposition.*—Before this age the sinus is frequently, if not generally, present.

"IV. *Phrenological Proposition.*—The frontal sinuses are rarely to be found in women.

"*Counter Proposition.*—1. These cavities are rarely absent in the female cranium. 2. Even more rarely than in the male.

"V. *Phrenological Proposition.*—The sinus, when present, betrays its existence and extent by an irregular elevation of a peculiar character, constituting a bony crest, or ridge, or blister, and is distinguished from the forms under which the phrenological organs are developed.

"*Counter Proposition.*—There is no correlation between the existence and extent of a sinus, and the existence and extent of any such elevation, whether superciliary or glabellar—either may be present without the other; and when both are co-existent, they have no reciprocal proportion in their dimensions, or in their figure. Neither is there any form of cranial development which excludes the subjacent presence of a sinus.

"VI. *Phrenological Proposition.*—In ordinary cases the sinus only extends an obstacle over two organs (Size and Lower Individuality), or, at most, partially affects a third (Locality).

"*Counter Proposition.*—In very ordinary cases the sinus covers a greatly larger proportion of the supposed organs, and frequently affects more than a third part of the whole thirty-six.

"VII. *Phrenological Proposition.*—The opposite sides of the cranium are in general commensurate; and when not symmetrical, this inequality is the effect, and consequently the index, of disease in the brain.

"*Counter Proposition.*—The opposite sides of the cranium are very rarely symmetrical, very frequently widely different in development; and this disproportion is seldom the consequence of any morbid affection.

"VIII. *Phrenological Proposition.*—The convolutions of the opposite hemisphere of the human brain are almost perfectly symmetrical.

"*Counter Proposition.*—Neither in the upper nor in the under surface of the brain, and no age or sex of the human subject, have the convolutions of the two hemispheres any reciprocal symmetry, but differ remarkably from each other in figure, connexion, situation, length, and breadth.

"IX. *Phrenological Proposition.*—The whole brain (encephalon) does not in general attain its full complement of size till thirty, and in many individuals not till forty years of age.

"*Counter Proposition.*—From the age of seven the cerebral mass gains little or nothing in volume; and the increase of the head about the time of puberty, and afterward, is determined by the greater development of the cranial bones, muscles, integuments, and hair.

"X. *Phrenological Proposition.*—The cerebellum only attains its full relative proportion to the *brain proper* from the age of eighteen to twenty-six.

"*Counter Proposition.*—The cerebellum reaches this proportion many years before puberty, and even probably as early as three years old.

"XI. *Phrenological Proposition.*—In male animals the

cerebellum proportionally even to their larger brain is generally greater than the cerebellum of females of the same kind; and this difference is still more decided in man than in the other species of animals.

"*Counter Proposition.*—The cerebellum of women (and the analogy holds true throughout nature) is, on an average, *in proportion* to their smaller heads, much larger than the cerebellum of men.

"XII. *Phrenological Proposition.*—As the female cerebellum, even in proportion to a lesser brain, is relatively smaller than the male, the ratio of its inferiority in size will be greatly increased if the two parts are compared directly with each other, according to their absolute proportions.

"*Counter Proposition.*—Though on a smaller head, the cerebellum of women (and probably the same is true of other females, as compared with other males) is, on the average, *absolutely* larger than that of men.

"XIII. *Phrenological Proposition.*—In women, as more frequently actuated by a strong natural propensity to devotion, the organ of Theosophy, or Veneration, is in general more largely developed than in men.

"*Counter Proposition.*—The manifestation can not be denied; but those dimensions of the head which determine the size of the supposed organ of religious sentiment, are, proportionally, even to the smaller size of the female head, much less on the average in women than in men.

"XIV. *Phrenological Proposition.*—As the 'knowing faculties' are in full energy at a much earlier period than the 'reflective,' the lower region of the brow, along which the organs of the former are distributed, is found more largely developed in children than the superior parts of the forehead, in which are situated the organs of the latter.

"*Counter Proposition.*—The manifestation is notorious;

but the heads of children are peculiarly and remarkably distinguished from those of adults, by the greater development of the higher region of the brow, as compared with the smaller development of the lower."

The reader who is conversant with the status of cranial and cerebral anatomy to-day can easily perceive by these propositions that the phrenologists were in advance of the commonly received opinions among anatomists when Hamilton leveled his artillery at Gall and Spurzheim. He summons to his support, in defending the declarations under the general title of "Counter Propositions," the concurrent testimony of anatomists, intimating that he had made a careful study of the authorities in vogue at the University, of whose faculty he was an eminent member. It should be remarked here that both Dr. Spurzheim and Mr. Combe protested against Sir William's construction of phrenological doctrine in several of his "Phrenological Propositions." For instance, Dr. Spurzheim challenged him to state the source of the assertions in the Vth, VIIth, VIIIth, and XIVth "Phrenological Propositions," and declared the statements therein "to be inexact" and not his opinions.*

But taking the assertions of Sir William as they stand, and comparing them with the teaching of the later anatomists—for instance, Dr. John Gray, Dr. J. C. Dalton, Prof. Alexander Ecker, Prof. Turner of Scotland, and others of acknowledged high authority—it will be apparent that the phrenologists of 1827 and the anatomists of 1879 are, in general terms, accordant. No one questions the fact that the brain in old age naturally shrinks in volume, and that the cranial bones actually thicken on account of the re-

* Letter to the *Caledonian Mercury*, 23d January, 1828.

cession of the inner table from the outer table of the skull in correspondence with the brain shrinkage; that the true sinuses do not appear until near the age of puberty; that they are more marked in man than in woman; that they are indicated by a bony ridge or protuberance, which is usually proportioned to their extent; that the opposite sides of the cranium are in general commensurate; that there is a close resemblance between the two hemispheres of the brain; that the brain grows until a person has attained forty years; that the cerebellum does not reach its maximum until twenty; that the male cerebellum is larger than the female, generally in animals, and absolutely in man; that in women the head is usually fuller and more rounded in the superior or sincipital region than in men; that young children do not show elevation of forehead, but development of the lower or perceptive range of the intellectual faculties.




FIG. 115. — FRONTAL SINUS — A REDUCTION FROM NATURE.

The extraordinary allegation in the VIth "Counter Proposition" with reference to the sinus affecting "more than a third part of the whole thirty-six" organs recognized by Spurzheim, is so palpably absurd that he who is conversant with the arrangement of the phrenological organs would be disposed, at its first reading, to charge its author with sheer ignorance or willful misrepresentation. Ordinarily the sinus can not affect the examination of more than three organs—Form, Inviduality, and Size; while an exceptionally large sinus may trespass upon the lower border of Locality. It must be stated, however, that the com-

petent phrenologist can approximately determine the extent of a sinus by its exterior indications, just as an experienced physician can determine the extent of the thoracic cavity, and the condition of the lungs of a patient, notwithstanding the thickness of the chest-walls. The situation of the brain in the cranium, as known to every anatomist, and as shown in the illustration which represents the usual relation between the brain and the skull, is such that the mass of the frontal lobes lies above the part of the cranium in which the frontal sinuses lie. The lower surface of the frontal lobes rests upon the supra-orbital plates, their inner margins dipping a little in consonance with the osseous depression in which lies the *crista galli*, and at the bottom of which the olfactory nerves pass.

As the organ of Form lies in the first frontal convolution, which is situated partly in this depression, its determination appears to be the most affected by the existence of a sinus. Nevertheless, the phenomena attending the development of Form are so well defined that phrenological observers generally consider it an easy organ to estimate.

The general similarity of the cerebral hemispheres in the same brain, and of one brain to another in adult age, is recognized now by the leading neurologists, and maps and diagrams showing the arrangement of the *gyri* and *sulci* are among the indispensables of a thorough study of brain anatomy.*

The XIIIth "Phrenological Proposition," perhaps rests more upon the evidence of essentially phrenological data

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*See "The Cerebral Convolutions of Man." By Alexander Ecker, Professor of Anatomy in the University of Freiburg.

than the other "propositions," but its truth may be easily confirmed by the reader or student if he will observe the form of the heads of women as he meets them in his ordinary routine, and will compare it with that of the heads of an equal number of men. One investigator of eminence, Huschke, who is cited by Maudsley and others, found that the upper part of the brain and the posterior lobes to be proportionately larger in women than in men, and these regions he designated as having more to do with feeling than with the understanding.

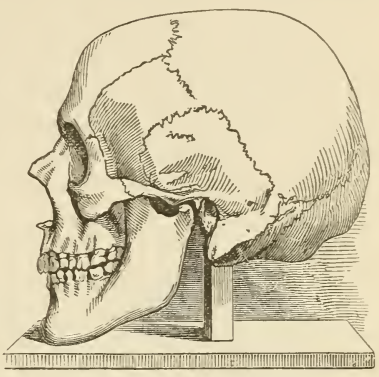


FIG. 116.—MALE CRANIUM.

Fig. 116 represents a well-proportioned male cranium, and Fig. 117 a well-balanced female cranium, as taken by photography from originals in the collection of the American Institute of Phrenology. The greater elevation of the female skull at the middle superior region is evident, and conducive to larger development of the organs which inspire the senti-

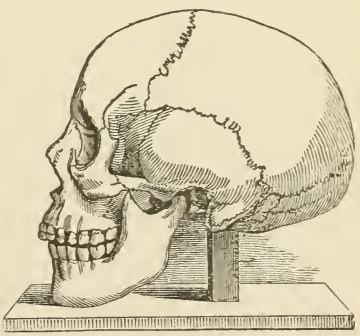


FIG. 117.—FEMALE CRANIUM.

ments of devotion, submission, and trust. An examination of the heads or crania of women of barbaric tribes will show a similar comparative development, while the type of the organization is lower than the European.

The advocates of Phrenology to-day have some reason for thanking Sir William Hamilton for his zeal in endeavoring to refute the doctrines of Gall and Spurzheim. His examination and arrayal of the old anatomists against the German philosophers but brought into strong relief some of the anatomical facts which the latter had personally ascertained in the course of their study of brain structure; and as science now recognizes those facts, Hamilton stands in the position of a witness unconsciously awarding the credit of their discovery to those two great apostles of Phrenology.*

### THE DISCLOSURES OF GALVANISM.

Neurological science has had for many years eminent observers who have given exclusive attention to the brain, and its physical relations. But ten years ago it was discovered by Fritsch and Hitzig, of Germany, that the brain is electrically excitable, and this new fact at once imparted a powerful impulse to experiments on living animals. The results of a course of such experiments which have been

* That Hamilton was really not entirely familiar with "the concurrent testimony of anatomists" of his own time and the century immediately preceding, is fairly shown by Professor Huxley in a recent contribution to *The Nineteenth Century*, in the course of which he remarks: "Even Sir William Hamilton, learned historian and acute critic as he was, not only failed to apprehend the philosophical bearing of long-established physiological truths; but, when he affirmed that there is no reason to deny that the mind feels at the finger-points, and none to assert that the brain is the sole organ of thought, he showed that he had not apprehended the significance of the revolution commenced, two hundred years before his time, by Descartes, and effectively followed up by Haller, Hartley, and Bonnet in the middle of the last century."

published by Dr. David Ferrier, of King's College, London, are exceedingly interesting to the student of Phrenology, because they constitute a physical demonstration of the fact that the brain is an assemblage of centers subserving distinct functions. To be sure, the results which Ferrier has tabulated * relate simply to the mechanical organism; but the evident impossibility of obtaining purely mental responses by the galvanic excitations of an animal, which had been rendered unconscious by anæsthesia, can not impair the observed facts of mental manifestation.

Fig. 118 is taken from Prof. Ferrier's work, and repre-

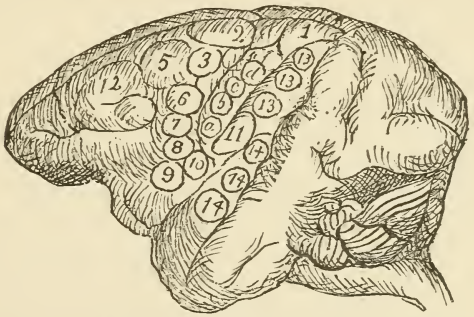



Fig. 118.—Mechanical Centers of a Monkey's Brain.

sents the left hemisphere of a monkey's brain, with the centers or regions numbered, which are said to be productive on irritation of certain muscular movements. 1, for instance, is related mechanically to "advance of the opposite hind limb as in walking." 3, has to do with "movements of the tail, generally associated" with other movements. 9 and 10 are related to "opening of the mouth with protrusion (9), and retraction (10) of the

* "The Functions of the Brain." By David Ferrier, M.D., F.R.S. Ed. 1876.

tongue." 13 and 13′, cause "the eyes move toward the opposite side with an upward or downward deviation according as the electrodes are on 13 or 13′. The pupils also generally become contracted." 14, "Pricking of the opposite ear, head and eyes turn to the opposite side, pupils dilate widely."

Here (in 13, 13′, and 14), we have movements which are suggestive, if of anything emotional, of watchfulness, caution, and slyness; and it is curious to notice that the region designated by the numbers are analogous to the locations of Cautiousness and Secretiveness in the phrenological order.

### THE SPEECH CENTER.

Allusion has been made elsewhere to the determination of a speech center by observations of the phenomena of aphasia, and the repeated examination of the brain of aphasic persons after death. That this center is situated in the third frontal convolution near the Island of Reil in the left hemisphere of the brain, all the physiologists agree. Some, however, Dalton, Lauder Brunton, and Ferrier being among them, are inclined to believe that a corresponding center lies in the right hemisphere. Prof. Ferrier explicitly says: "The speech center is, as has been stated, in the great majority of cases, situated in the left hemisphere. But there is no reason beyond education, and heredity, why this should necessarily be so. It is quite conceivable that the articulating centers of the right hemisphere shall be educated in a similar manner.

"A person who has lost the use of his right hand may, by education and practice, acquire with his left all the cunning of his right. In such a case the manual motor centers of the right hemisphere become the centers of

motor acquisitions similar to those of the left. As regards the articulating centers the rule seems to be that they are educated, and become the organic seat of volitional acquisitions on the same side as the manual centers. Hence, as most people are right-handed, the education of the centers of volitional movements takes place in the left hemisphere. This is borne out in a striking manner by the occurrence of cases of aphasia with left hemiplegia in left-handed people."*

This reasoning accords with the phrenological doctrine of the *double organization* of the brain, each hemisphere being a complete set of centers, motory, sensory, and mental. Observers of the form of heads know that the left side of the cranium is generally larger than the right, a natural consequence of the superior activity and use of the left hemisphere in the mental life of men. The differences in minute structure which are noticeable in the right and left hemispheres of the adult brain, are explicable by the same law of growth and development which governs in the case of our arms and hands.

According to Gratiolet, the brain of the Hottentot Venus, who was not idiotic, presented a simple and regular arrangement of the convolutions of the frontal lobe, the two hemispheres being almost perfect in symmetry. Her type of organization being low, and her mental faculties being almost limited in their exercise to the simple processes which relate to gratifying the animal instincts, there was nothing of that elaboration which is conspicuous in the brain of the white at the normal stage of development.†

*A Case quoted by an Opponent.*—As Dr. Maudsley appears

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* "Functions of the Brain," p. 278.

† "The Physiology of the Mind." Henry Maudsley.

to belong to the class of thinkers who attribute the growth of the intelligence peculiar to man to his superior power of attention, and to experience, it could scarcely be expected that he would show much favor toward the phrenological doctrine of localization; yet he occasionally supplies an incident or argument in his works which can be made serviceable in behalf of that doctrine. For instance, to his chapter on "Hemispherical Ganglia" (Physiology of the Mind), he appends a very interesting account of the French sergeant's case as reported by Dr. E. Mesnet.*

A young French soldier was wounded at the battle of Bazeilles by a gun-shot which fractured the left parietal bone. Hemiplegia ensued, from which he recovered, but subsequently peculiar disturbances of the brain were manifested, which have recurred since, periodically. The sergeant, in his normal condition, is an intelligent and faithful hospital attendant at Mayence, but in an instant he becomes unconscious of his surroundings, and acts like an automaton. The only sense by which an impression may then be made upon him is that of touch. His hearing is entirely lost; pins may be thrust into his body, and strong electric shocks administered without producing the least evident effect. He may be given to drink water, vinegar, assafœtida, etc.; they are all alike to him. His sight is so far lost, that it evidently conveys to his perception only vague impressions of brilliant objects. He eats, drinks, smokes, walks in his usual manner, repeating in the course of an attack his accustomed habits. There are, however, one or two manifestations which entirely belong to his abnormal state. The sergeant becomes a kleptomaniac during the attacks, purloining everything he can

* "*La Union Medicale*," July 21 and 23, 1874.

take and concealing it. If he find no property belonging to others, he hides, "with all the appearance of secrecy," small articles belonging to himself. Can it be doubted that the parietal fracture so injured the brain-tissues that some permanent lesion was produced, and an inflammatory disturbance brought about in the region of the organs known in Phrenology as Acquisitiveness and Secretiveness? It is to be regretted that Dr. Maudsley was not more definite in his location of the injury.

### DR. CHARCOT'S TESTIMONY.

In the discussion of abnormal mental phenomena, and their relation to pathological conditions of the cerebrum, Professor J. M. Charcot, of Paris, has shown a rare minuteness in tracing the boundaries of an affected region. It must be admitted that his position as chief of the great Salpetriere hospital, has afforded him exceptional opportunities for the study of cerebral disease. Nevertheless, modern science is indebted to him for the earnestness and care which characterize his investigation. One case which he notes in its bearing on aphasia, was that of a woman named *Farn.* . . . . She lost the faculty of speech, yet exhibited "no trace of paralysis, either of motion or sensation." Aphasia was "the only symptom, and atrophy of the third convolution was also the only corresponding lesion revealed by autopsy.*

The illustration from Charcot exhibits the region of disease as it appeared in examination in this case, which is one of the most interesting recorded of its class. One of the primary conclusions to which Dr. Charcot has been

* "Lectures on Localization in Diseases of the Brain." By J. M. Charcot. Translated by E. P. Fowler, M.D. 1878, p. 53.

led by his investigations is there epitomized in one of his lectures:

"Long explanations are unnecessary to convey what is

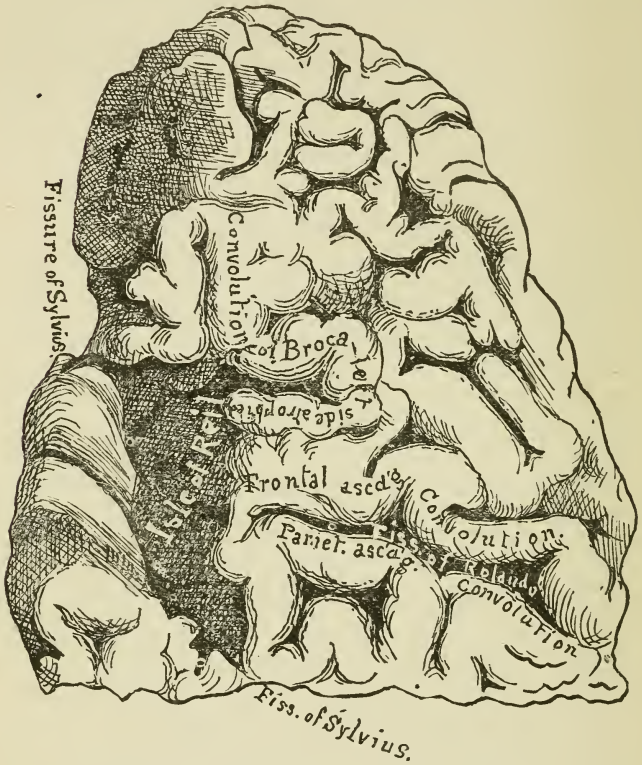



Fig. 119.—Diseased Brain, Anterior Lobe, Left Side.

meant by localization in cerebral physiology and pathology. The term has long since become a common one, and its meaning is well known. I will therefore only remind

you that the principles of cerebral localization rest upon the following proposition: The encephalon does not represent a homogeneous organ, an unit, but rather an association, or a confederation, composed of a certain number of diverse organs. To each of these organs belong certain distinct physiological properties and faculties."—*Idem, p.* 2.

NOTE.

## THE COLOR SENSE.

A good deal of attention has been given of late to that varied defect in the perception of colors, found in many persons, which is called "color-blindness." So many accidents, involving loss of human life, had occurred, the cause of which seemed inexplicable, that European physiologists were induced to look to the physical organism of sense perception for a clew to their solution. It was asked—might a collision of two vessels at sea, or of two railway trains on land, be the result of some positive organic defect in the look out or engineer, which led him into an error of judgment? As lookouts, engineers, guards, switchmen, and others in cases of accident, now and then were found to have mistaken the color signals, and were totally at a loss to account for their mistakes, it was deemed proper to examine into the nature of color preception, and the most surprising revelations have followed such investigation in Europe and America. Dr. Holmgren, of Upsala, Sweden, published a volume in 1877 on "Color-Blindness, and its Relations to Railroads and the Marine," which embodied the fruits of an extended course of observation. This book awakened general interest in the matter, and several publications have recently appeared containing a great amount of data derived from a variety of sources. The employés of railway and steamship companies, operatives in factories, children and youth in the public schools and higher educational institutions, have been made

the subjects of optical experiment by those who have taken up this new branch of scientific inquiry.

It has been found that a large number of people are defectively constituted for recognizing colors. Dr. B. Joy Jeffries, of Boston, Mass., states that one male in twenty-five is color-blind in some degree.* In woman this defect is rare, as has been shown by an extensive examination of the eyes of school-girls and women in Europe and this country. Dr. Holmgren found but 10 at all affected among 7,119 females of all ages and vocations. Dr. Jeffries reports only 4 among 7,942 students and scholars. This proving is in close accordance with the observation of phrenologists that the organ of Color in woman, as compared with man, exists in a much higher state of development.

Among the conclusions of value to us which have been reached on the subject, are these:

Color-blindness is a congenital defect, and incurable. It is not connected with any special color in the iris, or in the humors which are inclosed by the eyeball. It may be due to an hereditary disease which affects the optic nerve, producing a form of atrophy.

Tobacco and alcohol may produce color-blindness. So, too, accidents, ecpecially those accompanied with severe jar or shock, may cause this abnormality in the sense of vision.

Professor Wilson, of Edinburgh, who, as far back as 1855, had given some attention to the phenomena of color-blindness, reports the case to a physician, who, after having been thrown from his horse, "suffered great cerebral disturbance," and his perception of colors was found to be permanently impaired, so that the flower which once charmed him by its contrst of tint, appeared of a uniform, dull hue.

The data of this interesting semi-pathological phase of human vision are not deemed sufficient to warrant physiologists at large in concluding that it is due to some defect in the retina, or that its cause must be looked for in the brain,

* Color-blindness: Its Dangers and its Detection. 1879.

although Dr. Niemetscheck and Dr. Aubert, of Germany, hold that in the color-blind there is a contraction of the anterior lobe, so that the brain mass is actually smaller than in those whose color sense is perfect. This conclusion was based upon certain measurements of the distance between the pupils of the eye in color-blind persons. Dr. Cohn, Professor Holmgren, and some others do not accept the views of Niemetscheck and Aubert, while they agree substantially that this class of abnormal vision may be caused by a defective constitution of the optic nerve or by some cerebral weakness or disturbance congenital in the person affected, or be a sequence of brain disease.

But to us, it seems evident enough that when a person is so deficient in the apprehension of colors, that he can not distinguish red from green, the physical apparatus in his head, which has for its function the discernment of color, has lost or lacks one-third of its power, red being one of the three primary or foundation colors. This lack is naturally exhibited by a reduction of the volume of the nervous substance in which the function resides, just as weakness of vision or blindness can be traced to disease of the substance of the brain, in which the optic nerves terminate, and a consequent atrophy of center and process. The distinctness of the difference between mere vision and the appreciation of hues is acknowledged by all observers; that one may possess excellent eyesight, but be greatly wanting in the determination of colors, is a surprising anomaly to those who do not accept the phrenological solution. The phrenologist understands how a man with eyes, in themselves anatomically perfect, may not be able to estimate with average correctness the size of a packing-box, or the weight of a horse, while another, whose eyes are so impaired that he must employ spectacles, will respond to a challenge of this sort by a prompt and close estimate.

It requires not argument to prove that there are persons with good vision, who are unable to appreciate the beauty of

a picture or a statue. Their eyes take it in as a mere object; they may perceive its symmetry and fidelity to the original, but they have so weak an endowment of the artistic sense that they can not trace the relations which make a work of art beautiful, and, as such, a source of gratification. It is evident that the idea of beauty is not due to the eye, but to the exercise of a faculty in the mind which uses the eyes as an instrument.

The cat and the eagle have better eyesight than human beings, yet no one supposes that they perceive beauty as man perceives it. They lack the artistic sense, or ideality. There are thousands of men who have good eyes, considered as a piece of mechanism, and though they may see all the parts of an object, it has in it principles and ideas which they do not comprehend. They see it, but they do not see *into* it, or appreciate it.

As a writer has said, the eye in itself is a machine adapted to the recognition simply of light and shade, just as a photographic instrument may be said to perceive an object. The latter reproduces the object to which it has been directed, not with its contrasts of color, but with variations of light and shade; the red parts will be dark or black, according to the brightness of the red; the blue parts light, approaching whiteness, in accordance with their variation in tone. If the artist would have the camera reproduce a picture with all its charming effect of tint, he must find a substance which will be susceptible to the delicate impression of the light reflected by different colors. Such an invention would be analogous to the wonderful nervous process in the brain, which resolves differences of light and darkness into a great variety of hues, and contributes in no small degree to man's enjoyment of nature and art.

There is an evident analogy between the phenomena of aphasia and the phenomena of imperfect vision, which the earnest physiologist can scarcely overlook, we think. The persons who are affected by aphasia experience more or less

difficulty in the use of language, according to the extent of the cerebral disturbance, and the anatomical examination of the brains of those who have died from aphasia has led to the establishment of a nerve-center for language to the satisfaction of physiologists generally. In other words, the pathological phenomena of the faculty of Language have shown to the scientific world the soundness of the phrenological theory that claims an organ of Language as an integral part of the anterior lobes of the cerebrum.

So with regard to the "color-sense," the investigations which are in progress concerning its abnormal and pathological phenomena, will doubtless result in the "discovery" of a region of the brain specially charged with the function of apprehending colors, and in that portion of the frontal or intellectual lobes where Dr. Gall and Dr. Spurzheim placed it, in accordance with their observations of the contour of the forehead in those endowed with a high discrimination of color, and in those who were defective in its appreciation.

# CHAPTER XVII.

## THE PHYSIOLOGISTS AND THE CEREBELLUM.

PROBABLY no point in the system of Phrenology has been more opposed and berated than that with reference to the location of the sexual principle in the cerebellum. Physiologists speak of it as a "center presiding over equilibration and general muscular co-ordination," and, at the same time, their experiments on living animals exhibit phenomena of a most confusing and contradictory nature. From Flourens' early experiments to those of the latest investigators, the alleged results which have been published well sustain the statement by Dr. Flint in one place, that "There are still the widest differences of opinion among physiologists with regard to the functions of *the cerebellum.*"* Although, in another place on the same page, he uses language like this: "There is now no difference of opinion among physiologists with regard to the general properties of the cerebellum." An examination of authors such as Hitzig, Foster, Ferrier, Budge, Schiff, Pinel, Dalton, Carpenter, and others of reputation, with the view to obtaining some definite conclusions on the special office of the cerebellum, has resulted in complete failure. We have found variations and inconsistencies of statement in the same volume, and emphatic expressions of disagreement of one author with another. The fact appears to be, in brief, that many

* Text-book of Human Physiology. By Austin Flint, Jr., M.D. Page 708.

results of the electrical excitation of the cerebellar lobes simulate results which follow such stimulus when applied to different parts of the cerebrum, and to parts of the upper extremity of the spinal cord. Dr. Dalton summarizes his views in a fashion which tallies with this opinion :

"Everything which we know with certainty, therefore, in regard to the cerebellum indicates its close connection with the power of co-ordination over the movements of the body and limbs. It can not be regarded as exclusively presiding over this function; since there is strong evidence that the posterior columns of the spinal cord are in great measure devoted to the same purpose, and their morbid alteration necessarily induces in man the disease known as locomotor ataxia. . . . . The spinal cord itself is, of course, essential to the co-ordinated motions of the body, arms, and legs, since its posterior columns are for them the direct agents of control and communication, but the cerebellum may also be regarded as a focus or nervous center of reflex action over all the more vigorous and complicated movements of the trunk and limbs." *

But could it be ascertained by the mechanical processes of experiment that the cerebellum is a specific center for certain physical movements, such a fact would not invalidate the claim of the phrenologist with respect to the location of Amativeness, or the sexual instinct in the cerebellum, for the simple reason that just as mental impulse and physical action are inseparably interblended in human life, so the nervous centers and processes which belong to each are associated in the encephalon. Parts which co-ordinate in the production of external manifestations are intimately associated in physical structure. This is a law

* "Human Physiology." By J. C. Dalton, M.D. Page 499.

of nature, and the discoveries which have been made, with the assistance of the electrode, by Hitzig, Ferrier, and the other experimenters, so far as they go, are in accordance with it.

From observations of his own, made on a very large number of animals, Prof. J. Vimont, of Paris, derived the following: "In all the animals which multiply rapidly, and which propagate several times a year, the cerebellum is, in general, very largely developed. . . . . It may also be asserted that in the *Rodentia*, which is precisely that class of animals that multiplies most rapidly, the cerebellum is found largely developed, regard being always had to the size of the brain."

"The carnivorous animals which present a great development of the cerebellum, such as dogs and cats, are very ardent in love. Among more than two hundred skulls of cats in my collection I have examined the brains of upward of thirty, and I have constantly found, in all the very ardent females, a voluminous cerebellum."*

The eminent physiologist, F. J. V. Broussais, a member of the Institute of France, in discussing the cerebellum and its functions, before his classes in the University of Paris, emphasizes his opinion in the following language: "These observations of Dr. Gall have been subsequently confirmed by all inquirers who have studied the subject with due attention, and especially with impartiality; and phrenologists possess considerable collections of skulls and casts which support them. The evidence is thus conclusive that the generative function is ascribed to the cerebellum, but without being able to affirm that it executes no other functions. Nevertheless, some individuals who are oppos-

* "Traité de Phrenologie Humaine et Comparée.' Vol. II. Edition 1835.

ed to Phrenology, maintain that the generative propensity has been observed very powerful in persons who had scarcely any cerebellum, or whose cerebellum had been destroyed, or in whom only the rudiments of it existed. I do not know to what extent such alleged facts merit our confidence. For my own part I declare that they will inspire me with none until they shall have been verified by phrenologists. It is necessary to be on one's guard against facts which are attested only by the adversaries of a science; because it is well known to what extent the spirit of speculation may lead to falsehood in assertion. We exhibit collections of positive facts; and we daily repeat our observations. If some exceptions exist, we do not deny them, but set them down as points to be explained. It is not sufficient to show us merely single cases. Our opponents must make collections in contradiction to ours, and the histories of the individuals must be completely authentic. This has not been done; and we are justified in doubting the truth of these assertions. I defy those who advance them to produce proofs—I shall not say *superior* to those which we exhibit, but at all events *equal* to them. For my own part, whenever, since I knew the system of Gall, I have been consulted by individuals who complained of the inactivity or infidelity of the generative organs, I have always directed my attention to the cerebellum, and I have always found it very depressed. When children have been presented to me who, before the age of puberty, have manifested an extraordinary propensity toward the sexual act, and who had divined the process supplementary to it, I have always found the cerebellum very largely developed. This has never failed. I defy the opponents to produce pathological facts which can be weighed

in the balance against those which I possess of this description."*

Prof. Broussais' reasoning is pertinent to much of the criticism which opponents at the present day are much given to indulging. Indeed, with authorities like Vimont, Elliotson, Caldwell, and Broussais at command, the science of Phrenology has that (objective and subjective) support which should elicit the sober consideration of the learned of the present day, and compel the silence at least of superficial dilettanteism.

But there are physiologists not committed to the side of Phrenology who incline to the belief that both the center of the sexual instinct and that of muscular co-ordination may lie in the cerebellum. Among these is M. Serres, contemporary with Mr. Combe, who was of opinion that the median lobe may preside over the generative instinct, and the lateral lobes over muscular co-ordination. Another is Dr. W. B. Carpenter, who has been conspicuous in his antipathy to the doctrines of Gall and Spurzheim, yet "is far from denying *in toto* that any peculiar connection exists between the cerebellum and the genital system," certain facts having come under his personal observation which force him to that avowal.†

Dr. J. C. Dalton thinks that a certain part of the interior median region of the cerebellum may be related to the sexual property; his reviewal of the phenomena of pathology, and the data of vivisection, leading to such an inference.

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* "Cours de Phrenologie." Page 167, etc.

† "Principles of Human Physiology." Smith's Edition. Page 521.

SOME GENERAL OBJECTIONS CONSIDERED.

Perhaps it would appear to the learned reader somewhat evasive were we to pass over the last-named author without an allusion, more or less particular, to the broad criticism of phrenological doctrine, which appears in his "Treatise on Human Physiology," edition of 1864. Dr. Dalton was evidently at some pains in writing out his views, as they cover over two pages, and conclude thus:

"While Phrenology, therefore, is partially founded on acknowledged physiological facts, there are yet essential deficiencies in its scientific basis, as well as insurmountable difficulties in the way of its practical application."

Now, Dr. Dalton has not, as we can learn from this or later published statements, attempted to reduce the data of Phrenology to practice, and therefore has no apparent experience with regard to the "difficulties" in its application, and we can not but regard his assertion with respect to their "insurmountable" character as entirely gratuitous. What he offers in the way of special objections indicate a misapprehension of the uses which phrenological science subserves. These objections may be summed up thus:

1. More observations, more data are required to establish the science than Gall or Spurzheim could have made or acquired in a lifetime.

2. The gray matter of the brain has no anatomical divisions or limits, corresponding to the supposed phrenological organs.

3. The convolutions of the gray matter of the brain penetrate deeply into the central portions of the brain, and can not, therefore, be measured by external manipulations.

The learned and well-known medicist, Dr. Russell T. Trall, a few years ago reviewed Dr. Dalton's objections,

and exhibited, in a clear light, their futility. And we can scarcely do better than to use his own words on these and other points of importance. Dr. Trall very aptly says: "If Prof. Dalton wants to read the historical data (of Phrenology) for himself, he has only to look through Dunglison's 'Physiology,' a contemporary work, in which he will find ample evidence that the needed observations have been accumulating for more than two thousand years. For conclusive evidence that different portions of the brain exercise different functions, I will refer Prof. Dalton to his own book. On page 366 is a cut representing two Aztec children, a boy and a girl, aged respectively five and seven years. Their foreheads are so low and sloping that any phrenologist would, at the first glance, pronounce them idiotic in the reflective intellect—reasoning powers—while the perceptive range is quite prominent. Now, mark what the professor says of these children: 'The habits of these children, so far as regards feeding and taking care of themselves, were those of children of two or three years of age. They were incapable of learning to talk, and could only repeat a few isolated words. Notwithstanding, however, the extremely limited range of their intellectual powers, these children were remarkably vivacious and excitable. While awake they were in almost constant motion, and any new object or toy presented to them immediately attracted their attention, and evidently awakened their lively curiosity. They were accordingly easily influenced by proper management, and understood readily the meaning of those who addressed them, so far as that meaning could be conveyed by gesticulation and the tones of the voice. Their expression and general appearance, though decidedly idiotic, were not at all disagreeable or repulsive; and they were much less troublesome to the persons who

had them in charge than is often the case with idiots possessing a larger cerebral development.'

"Idiots may possess a larger cerebral development, that is, a larger mass of brain, and yet have smaller intellectual organs than the Aztec children; they would be more idiotic intellectually, and less idiotic affectionally. They might have normal feelings, emotions, sentiments, and passions; yet not intellect to guide and direct them, their manifestations would necessarily be to a great extent abnormal and erratic. Dogs, cats, sheep, horses, cattle, monkeys, elephants, whose reflective organs are small or merely rudimental, answer precisely to Prof. Dalton's description of the Aztec children. They have a comparatively large development of the merely observing portions of the brain, but are idiotic (compared with men) in the reasoning powers.

"The Aztec children were fairly developed in the perceptive intellect; hence their vivacity and curiosity. And now, when an objector will find any person whose head is very small in the region where phrenologists locate Causality and Comparison (no matter how much brain he may have elsewhere), and who is a good reasoner, then he has one fixed fact to urge against Phrenology. If he had found the Aztec children capable of reasoning, destitute of vivacity, and the disposition to notice things, he would then have had a fact against Phrenology; but as the case stands, all his facts are, 'on the contrary, quite the reverse.'" *

As for the second objection, it entirely falls to the ground, in the light of recent investigations of brain functions through the instrumentality of galvanism. Simply accept-

* "Annual of Phrenology and Physiognomy," for 1873.

ing the claims of the experimenters themselves is sufficient; the physiologists offer to the scientific world, as has been already stated, tabulated results, with diagrams of the brute and human encephalon, in which many points or places in the brain substance are specified as having direct relation to certain muscular phenomena. In other words, they have found special centers of mechanical impulse; yet they can not indicate any lines of separation in the anatomical structure. Dr. Trall said, on this point: "The brain, as an organ of mind, is a unit. The brain, as related to different objects and diverse functions, is a plurality of organs. The ganglia of the nerves are appropriated to various organs of different functions, or serve as reservoirs and distributors of nervous energy. The vital organs are not intimately associated in functional action as are the mental. The nervous ganglia may be compared with ten thousand electro-magnetic batteries, scattered all over the world, each managing the telegraphic wires in its own vicinity. The brain may be likened to a telegraphic headquarters, or general office, where the ten thousand batteries report and concentrate; and the brain organs to the persons or officers who manage the general office. It is no objection to this theory that we can not see the functional divisions of the brain anatomically. The anatomy is too fine for our vision, as is the constitution of protoplasm, or the structure of the primordial cell, or the shape of the ultimate atom of matter." . . . .

"The skin is a unit—a homogeneous structure; as a whole it is the organ of touch. There are no anatomical limitations or divisions anywhere to be found, yet its feeling or sensibility is very different in different parts, both in degree and kind. The sensibility of the scalp is very different from that of the soles of the feet; and the sensibility

of several other parts of the surface is different from either, and from each other. . . . . Now, although the skin is the general organ of touch, to prove that different parts of it exercise particular kinds of sensibility, one has only to manipulate his own surface in different places. And although the brain is the general organ of mind, to prove that different portions of its substance perform different functions, one has only to manipulate the head (or body even) so as to call different parts of the brain into exercise."

The third objection, to one who is not well informed in Phrenology, appears very formidable, but it has been answered many times. Most writers, in its dicusssion, indicate a want of familiarity, not only with the phrenological authors, but also with the latest showings of their contemporaries in physiology. This objection weakens at once when the law of development in vital organisms is considered. The framework of the body in all stages of growth, corresponds with the organs and structures; the bony walls or coverings are adapted to their contents; so the bones of the cranium are developed with the brain and increase with the dimensions of its various parts; unfolding from their central points, the convolutions enlarge the whole skull according to the size of the whole brain; and special parts of the skull indicate fullness or prominence according to the size of the brain within. Experimental science has confirmed the phrenological doctrine, that functional expression is on the surface, in the cortical layers. It has been shown that development of any one part has to be estimated by its radial distance or extension from the *medulla oblongata*, the common center of the brain. It has been shown, in the order of our treatment of the subject, that the constitution of the brain in its fineness, density, etc., depends upon the quality and

temperament of the individual. Education has its influence and is a factor in nervous growth, which must be considered if an accurate judgment is to be formed by the observer. A pertinent remark by Dr. Trall is not out of place here: "Were the brain divided into distinct portions anatomically, as Prof. Dalton seems to think should have been the arrangement if the organs were intended to be multiple, the unity, harmony, co-operation, and intimate association of the mental operations would have been destroyed. For the purpose of human life it is often important that one organ or mental power should be exercised alone and intensely; on other occasions two, five or ten may be associated in action; and these actions, singly or variously combined, must be rapidly changed. And for this purpose—to allow the greatest action with the least possible friction—the brain substance is semi-fluid, eight-tenths being water. Were the more solid structure—the muscles and nerves, for example—subjected to such rapidity of action they would soon wear out."*

No intelligent phrenologist claims for a moment that all the organs of the brain have been discovered. On the contrary, it is believed that we are very far from a practical comprehension of the whole field of mental inquiry. The areas allotted to the several organs are so large, that it seems unquestionable that intermediate ones exist, and await the determination of observers, while there may be others situated interiorly.

* It is due to Dr. Dalton to state that the late edition (1875) of his "Treatise on Physiology" contains no such reference to the phrenological system as that quoted from the edition of 1864, and it is reasonably inferred that the learned author has found occasion to modify his opinion. What he had written, however, in 1864, so well represents the common objections made, even to-day, by medicists, that it was appropriated by the authors of "Brain and Mind," for examination. Since 1864, remarkable changes have been witnessed in Neurology, and Dr. Dalton has been among the first of American physiologists to appreciate them, and is, we think, entirely worthy of the eminent position he holds as a teacher and author.

# CHAPTER XVIII.

## PHRENOLOGY IN GENERAL LITERATURE.

With the lapse of time, the efforts of those who have made Phrenology their vocation, and by tongue and pen taught its principles, have succeeded in imbuing the thought of the present with many of its practical truths. When George Combe, more than fifty years ago, fearlessly published to the world his "Constitution of Man," and explained in terms of limpid clearness, the influence of organization upon human conduct, the religious community drew back in amazement and taunted the great author with impiety and presumption, and heaped derision upon all who approved his opinions. But now, those very opinions are, for the most part, accepted wherever the sun of science illumines the land. The medicist, the economist, the public teacher, the pastor, all who add liberal learning to intelligence, agree in the belief that qualities of mind and peculiarities of body are transmitted from parent to child; that "the tree is known by its fruit," and that grapes can not be gathered from thorns, or figs from thistles. These simple deductions from the common phenomena of human life, asserted by the early phrenologists, raised cries of "materialism!" "fatalism!" "infidelity!" and even now, the same cries are reiterated by some inconsiderate persons, and furnish serious obstacles to the labors of many a devoted humanitarian. To the objector of to-day, we

would address language similar to that of Spurzheim when, on one occasion, he said to an assembly in Boston, Mass., shortly before his memorable death in that city: "I do not want you to believe what I propose to you; I only want you to hear what I have to say; and then go into the world and see, and judge for yourselves whether it be true. If you do not find it true to nature, have done with Phrenology; but if it be true, you can not learn it one minute too soon."*

No matter what the department of literature, phrenological truth now pervades it, and is essential to its practical appositeness where it concerns education and moral reform. The reader who is familiar with the writings of our most eminent essayist, Emerson, will recall many passages in which doctrine is introduced like that enunciated in this book. For instance, "People seem sheathed in their tough organization. Ask Spurzheim; ask the doctors; ask Quetelet, if temperaments decide nothing? or if there be anything they do not decide? . . . . How shall a man escape from his ancestors, or draw off from his veins the black drop which he drew from his father's or his mother's life? . . . . At the corner of the street you read the possibility of each passenger, in the facial angle, in the complexion, in the depth of his eye. His parentage determines it. Men are what their mothers made them. You may as well ask a loom which weaves huckabuck, why it does not make cashmere, as expect poetry from this engineer, or a chemical discovery from that jobber. Ask the digger in the ditch to explain Newton's laws; the fine organs of his brain have been pinched by overwork and squalid poverty, from father to son for a hundred years." †

* "Biography of Spurzheim." By Nahum Capen, LL.D., p. 147. Ed. 1833.
† "The Conduct of Life—Fate." By Ralph Waldo Emerson.

Mr. Alexander Bain has devoted a volume to the consideration of Phrenology—and he discusses it as a metaphysician—as a rationalist, not as an observer of the actual phenomena of mental action; not as a recorder of objective data—yet he finds much to approve in the phrenological system, and is at least willing to admit its claim to be "a *science of character*."* As a metaphysician, he finds occasion here and there to criticise the Phrenology of Mr. Combe, in his ascription of certain properties, or modes of activity to a faculty or organ, and often it seems to us he merely adopts the method of old philosophers who differ so much in their definitions and reasoning, and formulates opinions which appear to be founded chiefly upon his own mental introspection.

Our intention in this concluding part of our treatise is to show by a few examples how very common the use of the terms and philosophy of Phrenology has become in the writings and sayings of those who supply our reading matter. Just as the books and publications of Greece, two thousand years ago, when letters reflected the high culture of her people, contained frequent allusions to the characteristics symbolized or indicated by face and form in man or woman; when artists, poets, and essayists illustrated the prevailing belief of the people in a science or system of physiognomy: so to-day, our best general literature abounds in interpretations of the appearance and conduct of men which are referable to standards whose demonstrations may be scarcely found outside of phrenological formulas. Many authors hesitate not to use the terms and *ipsissima verba* of Phrenology; but most are contented

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* "On the Study of Character." Alexander Bain, M.A., p. 24, *et. seq.* Ed. 1861

with drawing from the resources of its philosophy without repetition of its special technology.

An eminent American thinker and clergyman, James Freeman Clarke, recently said in a lecture on Self-Knowledge: "I recommend the phrenological arrangement of human powers simply as a convenient one in self-study. If a man wishes to know what he is fit for, and capable of, this gives him a useful method of investigation. It divides, for example, all our powers into mental, moral, and passional; intellect, morals, and affections. To the intellectual region belong, first, the perceptive faculties, by which we take notice of outward objects; notice their size, form, weight and color. Then the reasoning powers, by which we compare objects to see if they are alike or unlike, if they are cause and effect, if they are congruous or incongruous. Then there is the imagination, which makes a picture of the whole while examining the parts. Then, again, come the moral qualities—sympathy, reverence, conscience, firmness. Then follow the passional and energetic powers, which supply movement and force, as self-reliance, the desire of approbation, the desire for home, the love of family and friends, the passion for battling with difficulties, the passion for destroying evils, the passion for collecting property in all its forms, the desire of construction, which is the basis of all art. Now, this may be, or may not be, the best classification of human powers; but it is, at least, an exhaustive classification."

Farther on, in the same connection, he said: "One advantage of this system is, that it shows us how every power has its use and its abuse; how God has made everything in us good, but that we can abuse everything by excess. It also shows how one faculty may correct the excesses of another, or supply its deficiencies. Thus, what the phre-

nologist calls the organs of Combativeness and Destructiveness, are most important and valuable in their proper sphere. They help us to wage the battle of life, to conquer difficulties, to meet opposition, to resist and destroy evil and wrong; in short, to fight the good fight, and finish the work given us to do. No man can be an eminent philanthropist or a martyr without them. But they can easily be carried to excess, or exercised in a wrong direction. Then they make us quarrelsome, controversial, satirical, vindictive, lashing others with tongue or pen, and striking them with the dagger of sharp, poisonous, bitter, unkind words. They make termagants and scolds, fault-finders and Papal inquisitors. On the other hand, the best moral tendencies may be excessive, or misdirected. The lovely power of sympathy, which causes so much happiness, which makes men enter into the feelings of others, rejoice with those who rejoice, and weep with those who weep; which constitutes so much of the sweetness and comfort of life; this, also, may be excessive or one-sided. Then it makes persons weak and false, yielding to the present influence, loving the person who is near, forgetting the one who is absent, neglecting past promises, and so leading to insincerity. Therefore this tendency needs to be restrained by Firmness, Self-esteem, and Conscientiousness. But these, in turn, though good, are also easily carried to excess. Self-esteem produces self-reliance, which is one of the most essential features of character. Without it, character can hardly exist. It is the organ of sincerity, of independence, of personality. Yet it tends to dogmatism, to egotism, to assumption of superiority, to overbearing manners which forget the claims of others; and it makes the character hard and cold. A person can be even too conscientious. Conscience may be too irritable,

or too scrupulous; it may be always tormenting the soul with questions about imaginary sins; it may make us so afraid of doing wrong that we shall never do anything right. Firmness may become obstinacy; the love of order may grow into pedantry; the love of home take one away from social and public duties. Even reverence may become a fault. It is the crown of the whole moral nature, and has been therefore fitly placed by phrenologists on the summit of the head. It produces that beautiful modesty which, when accompanying manliness, is so charming; it creates that respect for all that is above us, which lifts the soul; it is the great incentive to nobleness; it is the power which enables us to rise above ourselves in the worship of goodness, whether human or divine."*

Another American divine whose eloquence has long placed him among the few who occupy the front rank of American oratory, often imparts special vividness to his illustrations by the employment of figures and metaphors derived from the philosophy of Phrenology. In a discourse whose theme was "The Higher Uses of Destructiveness,"† he reasoned after this manner: "Combativeness and Destructiveness are the architects, the engineers, the mechanics of human society. Men plow through the very rock-ribbed hills; and by their explosive powder they drive their way through mighty mountains, that a path may be made for commerce. They make new rivers where they please. They shut off the sea from its accustomed haunts. They pierce the heavens and the earth. They go here and there with saw and chisel and plane, changing

* "Self-Knowledge." A Lecture delivered to the Church of the Disciples, Boston, Dec. 2, 1877.

† Preached in Plymouth Church, Brooklyn, N. Y., Dec. 29, 1878, by Henry Ward Beecher.

the primitive forms of nature to adapt them to the wants of human life and civilization. Thus they become men's engines. They are the propelling forces of men of thought and enterprise. They are the power that lies behind men to enable them to execute. They are the bow by which, in the affairs of life, the arrow is made to fly swiftly to its mark. They do not die. They live on and on. There is thunder in the soul of every highly organized man; but they have risen a step higher than the lowest sphere.

"As society advances and its material wants in its higher estate are relatively supplied, Combativeness and Destructiveness, though they never cease, rise to yet higher functions. They lend themselves to the reason, to the will, to the affections, and to the moral sentiments. And here is a very subtle and transcendent fact to be observed. If you find a man without Combativeness and Destructiveness, then you find a man that is like grain which has not stiffness enough in the stem to enable it to stand up, and which will break and fall down and rot on the ground. A man must have Combativeness and Destructiveness if he is going to have any back-bone. That affection is of little value which has no power to send it with force. Love ought to fly like an arrow from a strong bow. It ought to speed like lightning. It ought to have intense power. Benevolence that has no energizing principle under it, is moonshine in which nothing grows; but benevolence that works into philosophy, and defends the unprotected, and slays the malignant enemy, and carries blessings to the needy, and compels machinery to work for benevolent ends, and builds ships to circumnavigate the globe for the good of mankind, and tears down mischiefs, and overcomes the devil—that has substance in it. The benevolent man that cuts off the leg that is diseased, that would destroy the

life of a fellow-man if it were not cut off, and who has the energy which enables him to destroy for the sake of saving —he is a truly benevolent man; but the sapless man of benevolence, who faints when he sees a drop of blood —what use is he for a surgeon or anything else? You want to give a man a great deal of thunder if you are going to make much of him in the direction of benevolence.

"The man, therefore, who has Combativeness and Destructiveness in him, and knows how to use them so that they shall give vigor and intensity to his affections, so that they shall make the will well-nigh omnipotent, so that they shall quicken the understanding, so that they shall propel the sentiments by which he, as an orator, affects his audience, destroying error, driving away darkness, lighting up hope, and inspiring right purposes in them—that man has power to benefit his kind as no other man has."

We can not ask for a clearer exposition in brief, of the action of the two faculties named in the mental life than this, and it points unmistakably to no merely superficial glancing at an author or two, but to deliberate study and thought in connection with the system of which the terms used are a technical part.

A brief survey of current scientific literature on the European side of the Atlantic, finds in the foreground other appropriate illustrations of the fact stated at the beginning of this chapter. In a lecture before his class, in the medical department of the University of Edinburgh, Professor Gairdner discussed at some length the alleged phenomena of Spiritualism, and expressed certain personal convictions in such definite terms as these:

"I have never gone into this matter professionally, or even as a scientific man; but I have always, on the other

hand, held that the duty of a physician toward these things was to have as little as possible to do with them. But still, in my career instances have come to my knowledge, and it was in consideration of all these, that I was led to attempt to formulate, a few nights ago, the state of my mind upon the subject by saying—and it is something like a distinct, and I think not an untrue, and unintelligible definition—that I call the state of mind of people inclined to Spiritualism, *a diseased condition of the faculty of Wonder*. I hold that the faculty of Wonder, or Reverence, if you will call it so, is an innate and necessary part of the human mind. Nay more, it is one of the most essential, one of the most beneficial of our endowments—that faculty by which we grasp; by which we strive, to a certain extent, to comprehend, and if we do not comprehend, to submit ourselves to, and even delight in, the unknown—by which we strive to apprehend that which we can not comprehend. You will easily see that the higher aspect of this faculty of Wonder is the basis of the whole of our religious aspirations. Therefore, it can not be that I mean to denounce it—to speak ill of it. But like all our other faculties, this part of our mental constitution is liable to abnormal action; in fact, to get into a state of disease.

"What I said of this faculty is, that when it is rightly applied by a fairly healthy mind to the connection between the spiritual and the material world, it does, or should, find abundant opportunity for its exercise within the realms of strict law. I do not mean here to touch or raise the question whether there are what are called miracles connected with the spiritual world any more than in the physical world. That is beside my argument. My argument at present is simply this, that within the realm of law, clearly understood as such, there is food for the faculty of Won-

der in all its aspirations, far more enduring, far greater, and far grander than anything that can be developed in the way of these communications of table-turnings, table-rappings, or anything of the kind."*

In the literature of Anthropology or any of the departments of that extensive domain of human science, the use of the phrenological technology is frequent. Prof. S. G. Morton, of Philadelphia, employed it in his much-esteemed *Crania Americana*,† and Mr. J. W. Jackson, of England, a later author in ethnology, deems the system of Gall and Spurzheim an indispensable auxiliary to the proper classification of the races. In a volume which possesses many more features of attractive interest for the general reader than the average essay on a scientific topic, he succinctly portrays the mental characteristics of the ancient and modern peoples. From a carefully-drawn sketch of the French type of organization, we copy the following:

"The Intellectual faculties approximate to, but do not equal, the Grecian type, their power being that of appreciation rather than origination; while there is, at the same time, a want of that harmonious balance which characterizes the superior Hellenic cranium. Nevertheless, with all its defects, this Intellect is the strong side of the Gallic mind, and by its astuteness, readiness, and taste, often gives its active and showy possessor a temporary superiority over the slower, but more powerful, Teuton. The Perceptives are prominent, and can not fail to give accuracy of observation and quickness of apprehension. Ex-

* *Journal of Mental Science* for April, 1879. London.

† "Crania Americana; or, A Comparative View of the Skulls of Various Aboriginal Nations of North and South America." By Samuel George Morton, M.D., Professor of Anatomy in the Medical Department of Pennsylvania College; Member of the American Philosophical Society. Folio.

cept in a few favorable instances, however, they are unequal in development, and seem more suited for the scientific investigation of natural phenomena than for the higher pursuits of art. They will eminently conduce to delicacy and precision in mechanical manipulation, and as they are usually combined with considerable Constructiveness and Ideality, much ingenuity will be manifested in the finer trades, which are devoted to the production of ornaments and the decoration of either persons or buildings. With all this, however, there is, as we have already observed, good taste rather than creative power, the volume of brain not being sufficient for the latter. Hence, a people so constituted may lead the fashion in dress, jewelry, household arrangements, and even manners, and yet never attain to the highest rank in poetry, music, or art; and while pre-eminently excellent in toys, will fail to endow the world with those great mechanical inventions which change the destiny of nations and inaugurate a new era for humanity."*

In France the multiple organization of the brain claims many advocates of eminence in physiological investigation. We have already had occasion to refer, with some particularity, to Prof. Charcot, chief physician in La Salpetriere, Paris, whose views with regard to localized mental function, carry high authority. The name of Dr. Guetan de Launey, too, has been mentioned elsewhere, but not with that emphasis which it deserves. He has given much attention to the study of the heads and intellectual character of different classes in the Paris population, and the data which he has obtained and published have excited great interest in learned circles.

One feature of Dr. de Launey's observations was the

* Ethnology and Phrenology, as an Aid to the Historian. London, 1863.

measurement of the hats of different classes of men from the lowest artisan to members of the Academy of Science. From an article published in the *Tribune Medicale*, last year (1878), we translate a paragraph or two:

"In general, large heads belong to persons who give themselves to intellectual studies, but it is important to distinguish among these studies. For instance, the members of the Academy of Sciences have larger heads than their associates in other sections of the Institute. According to my researches, the Polytechnicians have a larger head than the St. Cyrans. In the same way, the pupils in the Normal School have a head greatly more developed than the pupils of the school of St. Sulpice. Indeed, the hats of the first have an 'opening,' that is the technical word, of five points, five and a half, six and six and a half points, representing fifty-eight, fifty-nine, and sixty centimeters in circumference, while those of the second have an 'opening' of four, four and a half, five, and five and a half points, or from fifty-five to fifty-eight centimeters of circumference. Pupils in the Normal School have, then, a mean circumference of two and a half centimeters larger than the St. Sulpiceans. Moreover, the opening of the hats of the high form made at Paris, is from four and a half points to five and a half, fifty-six to fifty-eight centimeters, with a medium of five points, or fifty-seven centimeters. This medium is superior, then, by a quarter of a point, to the medium of St. Sulpice, which is four and three-fourths points, which proves that the Sulpiceans have not only a smaller head than the Normals, but smaller even than the people at large. In general, this smallness of the head is prevalent among religious people, as the hatters in the quarter of St. Sulpice and of the Faubourg Germain have assured me, that they fit only fine heads. The quar-

ter where we find the largest heads is that of the schools. Indeed, the head-coverings which one finds among the hatters in this quarter, have a mean of five and a half points to six and a half, fifty-eight to sixty centimeters. According to some researches made by M. Brocetre in the hospital of Bicetre, the medical attendants have much more fullness of head than the invalids. M. Lacassaque, Professor in the Val de Grace, having measured, with the assistance of a conformateur, the heads of two hundred doctors of medicine, pupils of the Val de Grace, and of two hundred soldiers, found that the latter had much smaller heads than the former."

The life of Prince Bismarck, Chancellor of the German Empire, furnishes an incident of importance to phrenologists. According to Dr. Busch, the prince's late biographer, Bismarck once met with an accident which developed certain remarkable mental phenomena. He fell headlong, with much violence, from his horse while riding and was taken up in an unconscious state. The prince is quoted as saying, with reference to his sensations after the accident: "I lost consciousness, and when I recovered it, I had only half. That is, one part of my intellect was clear and good, the other half had gone." His biographer relates that, finding (on examination) his saddle broken, the prince called for his groom's horse and rode home. When the dogs there barked, by way of salutation, he thought them strange dogs, and scolded them angrily as such. Then he said the groom had fallen with the horse, and they should go and fetch him, and he became angry when they would not do that (because of a sign from his brother). He seemed to be himself and at the same time the groom. After eating and sleeping, he was all right next morning. He points out that he had

done all that was necessary in a practical respect; herein the fall had caused no confusion of ideas. "In short, it was a remarkable illustration of the fact that the brain lodges different mental powers; but one of these had been stupefied for some longer period of time by the overthrow."*

* "Bismarck in the Franco-German War." Dr. Moritz Busch.

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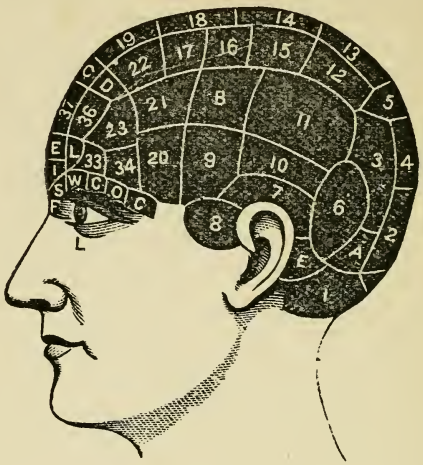
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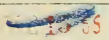
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